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THE INCIDENCE OF TUBERCULOUS INFECTION IN AMERICAN COLLEGE STUDENTS

DETERMINATION BY STANDARDIZED TUBERCULIN (PURIFIED PROTEIN DERIVATIVE) ON 18,744 COLLEGE ENTRANTS IN 1935-1936

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Within recent years great progress has been made in the control of tuberculosis in American college students. Five years ago only a few universities were organized for locating early cases of the disease in the student body. Today throughout the country college health services are better developed, either through well organized full time departments or through part time arrangement with local practicing physicians, and the control of tuberculosis has been made in most instances a major part of the health program.

This emphasis on one disease is the result of general recognition that tuberculosis is one of the most serious causes of disability in those of college age. The sharp upward trend of the tuberculosis mortality curve from the low level of prepuberty years to the high level of early adult life coincides with the age period of the college student. Moreover, it is now generally recognized that although the peak of tuberculosis mortality occurs after the college age, the beginnings of the disease are commonly traceable in the individual cases to the period of the late teens or early twenties.

Thus the colleges are faced at once with a problem and a great opportunity. The problem lies in the susceptibility of the age period and the corresponding relative concentration of disease, and the opportunity in the now well developed large scale methods for early recognition of cases of tuberculosis, permitting prompt arrest of many cases and prevention of serious illness or death. The colleges constitute one of the great filters through which a section of the youth of the nation passes. Seldom after the college age is it so easy to institute mass measures for prevention of the disease.

The importance of mass measures for early diagnosis is evident in the nature of tuberculosis. It is probable that the majority of cases of pulmonary tuberculosis still come to medical attention for the first time when already in an advanced state. It is true that there is no way to find the exact proportion of tuberculosis recorded as minimal when first seen by private physicians. The nearest approach to an estimate can be made through the records of hospitals and sanatoriums for tuberculosis. A survey of tuberculosis hospitals and sanatoriums in the United States, reported by the American Medical Association [1] in 1935, recorded 13.1 per cent of 66,861 patients as admitted in the minimal stage, and 29.7 and 57.2 per cent respectively as moderately and far advanced. Some of the total admissions represented transfers from other sanatoriums, and doubtless in many cases considerable time had elapsed between first diagnosis and sanatorium entrance. Nevertheless the figures seem significant as an indication of general late diagnosis of tuberculosis, since the current medical trend is to provide institutional care as rapidly as possible for patients found to have this disease.

The reason for the general delayed diagnosis of tuberculosis lies in the fact that its symptoms are trivial in the early stage and commonly not serious enough to urge the patient to seek medical attention. Herein lies the opportunity for the colleges, which control a large body of susceptible youth and can at no great inconvenience to the students subject the whole group to measures for locating all the incipient cases.

The success of an active program for finding the disease, as compared with a passive one in which responsibility is placed on the student to seek medical assistance when he feels he needs it, has been described by numerous physicians from college health services in recent years. Myers and Wulff,[2] in recording the experience of the University of Minnesota, wrote: "In the early days of our work we had no special organization for finding tuberculosis in the student body. We were so confident that clinical cases of tuberculosis would all present symptoms as early manifestations that we thought it was safe to wait until symptoms appeared. . . . We had not then had an opportunity to observe the chests of the same individual over years and see lesions appear and progress to massive proportions without the individual suffering a single symptom." Diehl,[3] at the same university, reported that among 2,500 students entering in 1931 a program of tuberculin testing and roentgenographing of positive reactors resulted in the finding of fifteen cases of active tuberculosis of which one was far advanced, five were moderately advanced and nine were minimal. He said, "Had we depended on physical examination and history alone for ordering x-rays of the chest, ten of the fifteen cases would have been missed."

The Tuberculosis Committee of the American Student Health Association [4] noted that in the year 1934-1935 in seventeen colleges with 85,428 students and an active tuberculosis program the rate for cases discov-

From the Henry Phipps Institute, University of Pennsylvania.

1. Survey of Tuberculosis Hospitals and Sanatoriums in the United States by the Council on Medical Education and Hospitals of the American Medical Association, J. A. M. A. **105**: 1855 (Dec. 7) 1935.
2. Myers, J. A., and Wulff, M.: Eleven Years' Observations on Tuberculosis Among University Students, Am. Rev. Tuberc. **26**: 530 (Nov.) 1932.
3. Diehl, H. S.: Proc. Am. Student Health A., Bull. 15, 1931, p. 128.
4. Ferguson, L. H.; Myers, J. A.; Shepard, C. E.; Lees, H. D., and Stiehm, R. H.: Fifth Annual Report of the Tuberculosis Committee of the American Student Health Association, Journal-Lancet **56**: 492 (Sept.) 1936.

ered was 5.7 per thousand, while in three other colleges, with an enrolment of 13,000 students and without an active tuberculosis program, the rate was only 1.2 cases per thousand, about one fifth as many. The only reason to be assigned for the difference is that in the one group the institutions actively sought out cases, thereby discovering many not sufficiently advanced to cause symptoms, while the other institutions waited for the development of clinical illness and solicitation by the student himself, while incipient symptomless disease remained unknown.

Soper and Wilson [5] stated that fifteen years of experience has indicated the futility of the old current methods of attack against tuberculosis in detecting early cases. They wrote: "Far too often pathological changes are moderately or far advanced when first discovered, or the symptoms are too few to cause the patient to consult a physician when the disease is still in an early stage." In their own experience at Yale University they found that an active case finding program based on mass tuberculin testing and x-ray examination in the two years of 1930-1932 brought to light more cases (forty-three) than were found in the preceding ten years (thirty-eight) by routine history and physical examination alone.

TABLE 1.—*Incidence of Positive Tuberculin Reactions (Purified Protein Derivative) in White American College Students (Chiefly New Entrants) in 1935-1936, Male and Female*

College	Physician	Number Tested	Average Age	Per Cent Positive
Yale University	Soper	1,501	20.54	47.9
Rutgers University	Kler	397	17.93	46.9
University of Pennsylvania	Lees	1,229	18.87	47.9
Haverford College	Taylor	181	17.46	65.7
Bryn Mawr College	Leary	416*	19.5	46.5
Emory University	Blackford	1301	22.54	48.3
The Pennsylvania State College	Ritenour	1,159	19.29	41.2
Ohio Wesleyan University	Blydenburgh	731	19.09	25.4
University of Wisconsin	Stiehm	3,251	19.12	28.6
Iowa State College	Edwards	1,450	18.39‡	20.6
University of Kansas	Canuteson	1,708	19.25	32.1
University of New Mexico	Werner	329	23.38	71.1
New Mexico State Teachers College	Werner	155	23.62	80.0
Seven Idaho colleges	Several	898	Not obtained	18.2
University of Oregon	Hayes	1,055	19.45	48.5
Stanford University	Shepard	1,631	19.73	40.5
San Jose State College (California)	Mason	286	20.49	31.4
Compton Junior College (California)	Smart	762	18.17	40.0
University of California (Berkeley)	Legge	2,300	17.89	31.5
University of California (Los Angeles)	MacKinnon	213	20.25	37.7
		18,744		

* All college classes.
† Medical students only.
‡ Positive reactors only.

At the University of Wisconsin, Stiehm [6] recorded an increase of 430 per cent above a previous fourteen year average, after the institution of a definite program for discovering cases of tuberculosis in the student body. In a discussion of the procedure at Stanford University, Shepard [7] noted that a general program encouraging students to report symptoms brought to light only three early cases in two years, and two of them with the serious complication of hemorrhage, while a standard tuberculin-x-ray program discovered five early cases in the same time in students who had no symptoms. During this period other cases were discovered on the basis of symptoms, but in all these cases the disease was advanced.

The standard case finding program advocated by the Tuberculosis Committee of the American Student Health Association calls for special history forms to elicit evidence of tuberculosis, physical examination and the specific procedure of tuberculin testing the entering students, roentgenographing the positive reactors and reexamining the negative group at intervals. The figures obtained for the incidence of tuberculous infection and the extent of clinical disease in college students are interesting and informative. It is significant that they vary consistently for different parts of the country.

Until recently the tuberculin test has not been on a standardized basis. Aside from real variations in the extent of infection there is variation in the college reports both because of differences in the quality of tuberculin used and because of the employment of different dosages. Variation due to the personal factor in reading reactions is probably of minor importance, as the student health officers in charge of tuberculosis programs in the colleges represent a highly trained group, practicing essentially the same technic. But it has been pointed out recently that variations due to weak tuberculin and the failure to follow with stronger concentrations the negative responses to the weak doses commonly employed for initial tests are responsible for some of the abnormally low incidence of positive reactions reported from some quarters.

Because of this variability, space will not be taken here for review of the several comprehensive reports on the incidence of tuberculous infection in the students of American colleges and universities. Figures range from 12 per cent of 3,000 students reported from the University of Iowa in 1933 to 62 per cent of 3,000 reported from Yale, and 98 per cent of senior medical students reported by Hetherington, McPhedran, Landis and Opie in the University of Pennsylvania. Details can be found in the papers already cited.

The reports are equally variable on the incidence of clinical disease in the colleges with tuberculosis programs. Ferguson [8] as chairman of the Tuberculosis Committee of the American Student Health Association has summarized the reports from time to time in his annual reports to the association. In 1933 the highest case incidence was 13.7 cases per thousand for men and 12.7 for women, while the lowest case incidence for both men and women was 3.1 per thousand. The average for the group surveyed was 6.4 cases per thousand in men and 7.5 cases in women, a sex difference corresponding more closely to the difference in tuberculosis mortality in the two sexes at the age period concerned. In this connection it may be noted that Cunningham [9] at the University of California called attention to a preponderance of cases in women in the age period 18-23 years.

The thorough study of Stiehm at the University of Wisconsin is enlightening and may be looked on as representative of a large section of the country. During the year 1933-1934 2,412 students were tested with tuberculin. Thirty per cent reacted positively. The positive reactors were roentgenographed. In approximately 5 per cent of them, or 1.5 per cent of all the students, roentgenologic examination revealed adult-

5. Soper, W. B., and Wilson, J. L.: The Detection of Pulmonary Tuberculosis in 3,000 Students Entering Yale University, Am. Rev. Tuberc. **26**: 548 (Nov.) 1932.

6. Stiehm, R. H.: (a) Tuberculosis Among University of Wisconsin Students, Am. Rev. Tuberc. **32**: 171 (Aug.) 1935; (b) Early Pulmonary Tuberculosis and Its Diagnosis, Am. J. M. Sc. **191**: 542 (April) 1936.

7. Shepard, C. E.: Campaign Against Tuberculosis in College Students, Am. J. Pub. Health **25**: 1118 (Oct.) 1935.

8. Ferguson, L. H.: A Study of College Students, J. Outdoor Life **31**: 299 (Aug.) 1934.

9. Cunningham, R. L.: Tuberculosis Among University Women, Am. Rev. Tuberc. **31**: 576 (May) 1935.

type tuberculous infiltration. In nearly one fifth of these, i. e., about 1 per cent of the positive reactors and 0.2 per cent of all the students tested, the disease discovered was serious enough to require sanatorium care.

Aside from the differences due to sex, characteristic variations according to age and course of college study have been discovered. Soper and Wilson in the students

TABLE 2.—*Incidence of Positive Tuberculin Reactions (Purified Protein Derivative) in White American College Students (Chiefly New Entrants) in 1935-1936, Male*

College	Physician	Number Tested	Average Age	Per Cent Positive
Yale University	Soper	1,311	20.06	46.4
Rutgers University	Kler	397	17.93	48.9
University of Pennsylvania	Lees	1,045	18.93	48.8
Haverford College	Taylor	181	17.46	65.7
Emory University	Blackford	120*	22.54	48.3
The Pennsylvania State College	Ritenour	857	18.97	40.7
Ohio Wesleyan University	Blydenburgh	271	19.68	28.0
University of Wisconsin	Stiehm	2,123	18.97	30.8
Iowa State College	Edwards	1,120	17.729	21.4
University of Kansas	Canuteson	912	19.34	35.1
University of New Mexico	Werner	185	22.02	72.7
New Mexico State Teachers College	Werner	69	24.95	81.1
Six Idaho colleges	Several	341	Not obtained	22.5
University of Oregon	Hayes	579	19.55	40.9
Stanford University	Shepard	708	19.84	45.0
San Jose State College (California)	Mason	84	19.44	67.8
Compton Junior College (California)	Smart	365	18.30	44.6
University of California (Berkeley)	Legge	1,279	17.36	33.6
University of California (Los Angeles)	MacKinnon	213	20.25	57.7
		12,140		

* Medical students only.
† Positive reactors only.

entering Yale in 1931 found an incidence of positive tuberculin reactors of 53.5 per cent in undergraduates at an average age of 18 years and 8 months, and 67.7 per cent in graduate students, who averaged 24 years and 6 months in age. Among the graduates were students in the various professions. The rate of infection of entering graduate students ranged from 57.8 per cent among law students to 76.9 per cent in medical students. The variation in the amount of clinical tuberculosis uncovered was parallel. Stiehm studied the rate of increase in infection with the passage of time at the University of Wisconsin. Four hundred and eighty-five students who were negative to tuberculin in the fall of 1933 were retested eighteen months later. Forty-five, or 9.3 per cent, had become positive to tuberculin.

TESTS IN AMERICAN COLLEGES IN 1935-1936

Observations such as the last cited have maximum significance when the tuberculin used is standard and of unvarying strength. When two different tuberculins are used, such a result is of much less significance. So, too, when different samples of tuberculin are used in the various surveys throughout the country the epidemiologic importance of the results obtained is uncertain. On the other hand, when surveys are made in different parts of the country and on students of varying background and are continued over a period of years, and a tuberculin of unvarying strength is employed, with constant technic, the results are of great importance for general epidemiologic understanding.

The only surely uniform tuberculin for testing purposes is the active principle itself, in solutions of standard concentration. In the purified protein derivative of tuberculin described in 1934 [10] we believe the active principle of tuberculin has been secured in reproducible and practically pure form. This tuberculin was first used in colleges in the fall of 1934, and the results in 8,328 students in eleven colleges were reported to the American Student Health Association in December of that year.[11] The colleges for the most part drew their students from the general region of their own location. A definite variation in the rate of infection in different sections of the country was shown. The rate on the Atlantic seaboard was relatively high, that in the Middle West relatively low, and that for the West Coast fairly high again.

In order to collect more figures as well as to assist in the promotion of college tuberculosis programs, an offer was made by the Henry Phipps Institute in the summer of 1935, before the College Hygiene Association and the American Student Health Association, to furnish purified protein derivative without cost to those colleges or universities carrying out at least 500 complete tests, using the regulation dose of 0.00002 mg. for the first test and a second dose of 0.005 mg. on those failing to react to the first injection, and finally sending their results to the Institute for compilation. Two biological supply houses, which have cooperated with the National Tuberculosis Association in its research program,[12] cooperated again by contributing to the Henry Phipps Institute considerable amounts of purified protein derivative for incorporation in standard solution for distribution. The material was sent out to the student health services in the colleges in 1 per cent solution, which has been found to be perfectly stable. Instructions were furnished for making such dilutions that 0.1 cc. furnished 0.00002 mg. and 0.005 mg. doses. Record forms were also sent. It was requested that all

TABLE 3.—*Incidence of Positive Tuberculin Reactions (Purified Protein Derivative) in White American College Students (Chiefly New Entrants) in 1935-1936, Female*

College	Physician	Number Tested	Average Age	Per Cent Positive
Yale University	Soper	190	21.99	57.9
University of Pennsylvania	Lees	184	18.51	42.9
Bryn Mawr College	Leary	416*	19.5	46.5
The Pennsylvania State College	Ritenour	362	20.47	42.7
Ohio Wesleyan University	Blydenburgh	460	18.73	22.8
University of Wisconsin	Stiehm	1,128	19.41	24.6
Iowa State College	Edwards	330	21.409	19.1
University of Kansas	Canuteson	396	19.05	25.3
University of New Mexico	Werner	144	23.11	68.7
New Mexico State Teachers College	Werner	86	22.55	70.0
Six Idaho colleges	Several	327	Not obtained	15.3
University of Oregon	Hayes	476	19.32	46.8
Stanford University	Shepard	325	19.55	30.7
San Jose State College (California)	Mason	202	20.94	44.5
Compton Junior College (California)	Smart	397	18.08	35.7
University of California (Berkeley)	Legge	1,041	17.42	29.0
		6,604		

* All college classes.
† Positive reactors only.

unused dilution be discarded at the end of the day. Those colleges practicing mass testing of from 100 to 500 students a day used the material very economically, while in others, in which only a few tests were made each day, there was considerable waste.

The results of 18,744 tests were returned for analysis. They are summarized in the accompanying tables. In almost all cases the tests were complete, the results of

10. Seibert, Florence B.: Isolation and Properties of the Purified Protein Derivative of Tuberculin, Am. Rev. Tuberc. **30**: 715 (Dec.) 1934.

11. Long, E. R.: Tuberculosis in College Students, with Special Reference to Tuberculin Testing, Journal-Lancet **55**: 201 (April) 1935.

12. Sharp & Dohme in Philadelphia and Parke, Davis & Co. in Detroit.

the second dose being recorded for those failing to react to the second dose. In about 5 per cent of cases, however, students did not return to have the second tests read. In this small number of cases mathematical correction was made by computing as positive among this group the same proportion as were found to be positive among those who did return for the reading of their second test.

Variation on a geographic basis is at once apparent from table 1. The results for the academic year 1935-1936 confirm our previous report covering the year 1934-1935. A high rate was found in the East, a lower rate in the Central states, and a relatively high but inconstant rate on the Pacific Coast. A noteworthy contrast is observed between Idaho, with a very low rate, and New Mexico, with the highest rates seen in the country.

Secondly, definite variation by sex can be seen from comparison of tables 2 and 3. Where the average age for the two sexes is greatly different, significant comparisons obviously cannot be made. However, the difference is well brought out by comparison of certain universities in which the age levels for the sexes are comparable. The universities of Pennsylvania, Wisconsin, Kansas and California may be cited as examples, representing the eastern, central and western sections of the country. Of the Pennsylvania men, with an average age of 18.9 years, 48.8 per cent were positive to tuberculin, while of the women, averaging 18.5 years, 42.9 per cent were positive. More significance could be attached to these figures if the number of women examined (184) were higher. The numbers at the other three institutions were statistically significant, however. At Wisconsin, of 2,123 men averaging 19 years, 30.8 per cent were positive to tuberculin, while of 1,128 women averaging 19.4 years, only 24.6 per cent were positive. At Kansas, of 912 men averaging 19.3 years of age, 35.1 per cent were positive as compared with 25.3 per cent of 396 women, whose average age was 19.1 years. At California (Berkeley) the figures were: 1,259 men, average age 17.4 years, 33.6 per cent positive to tuberculin; 1,041 women, average age 17.4 years, 29 per cent positive. The figures for Stanford University are similar to those from Berkeley except that the age of the students is greater and the rate for both sexes correspondingly higher. The figures for Stanford University were: 708 men, averaging 19.8 years, 45 per cent positive; 325 women, averaging 19.6 years, 30.7 per cent positive.

This sex difference did not always obtain, however. At Oregon, for example, where the sexes were equally represented of the same age, no significant difference was found. At other institutions such as Yale and Pennsylvania State University, where the entering women were on the average considerably older than the men, their infection incidence, as measured by the tuberculin test, was appreciably higher than that of the men.

RESULTS

The geographic variation, which now seems established,[13] is probably a reflection of the level of tuberculous infection in the community concerned. Objection might be made to this view on the ground that the college students at one institution do not necessarily represent the geographic location of the college, since they might have come from any part of the country. However, correspondence with the administrative officers of the colleges brought out the fact that with a few exceptions the majority of students were indeed of the general region in which the college was situated.[14] In the state universities the representation was almost entirely from the same state. It is interesting to note in this connection that a group of students at one university, but themselves from distant regions, may bring the rate characteristic of the distant regions with them. Stiehm[6b] found for the two years 1933-1935 a rate of 26.1 per cent for residents of Wisconsin at the University of Wisconsin and the much higher rate of 46 per cent for residents of eastern states attending Wisconsin.

The objection that college students are not necessarily representative of their region because they are a minority selected from a certain social and economic level is reasonable. It can only be said that college attendance today is by no means restricted to the upper social and economic levels. This fact is especially apparent in the state universities. In any event no claim is made that the college figure is the figure for the corresponding age in the population of the region concerned. We do feel, however, that it reflects the figure for the general population in about the same way in the different regions.

The high rate for the East is usually attributed, and with probable correctness, to the higher density of population in the eastern region, imposing more frequent contact and in the long run more exposure to tuberculosis. The mortality in the more crowded regions is known to be in general higher than in the less crowded, and presumably morbidity and chance for further spread of infection correspond to the greater mortality.

Conversely the relatively low rate in the Middle West can be explained on the basis of emanation of the students from less crowded regions of lower tuberculosis morbidity. The relatively high rates for the West Coast offer a problem. In part, at least, they may be attributed to the fact that for several decades the West Coast has received an immigration of tuberculous patients who have settled and raised their families there. Doubtless a good deal of community spread of infection has occurred from this immigration. In favor of this hypothesis is the high rate in the University of California at Los Angeles, notable in comparison with the rate in the University of California at Berkeley. To be sure the figures for the southern group are small and the age incidence is higher, but the disparity in rate of infection is so great as to suggest a significant difference, and it seems plausible to attribute the high rate in the southern institution to the resort character of southern California.[15]

13. Long,[11] Shepard.[7]

14. At Yale University 71 per cent of the students tested were reported as from New England and the Middle Atlantic states. Eighty-two per cent of the tested students at the University of Pennsylvania came from less than 200 miles of Philadelphia. Approximately 70 per cent of the students at Bryn Mawr came from the North Atlantic states. Haverford students were described as "chiefly from eastern Pennsylvania and New Jersey." Eighty-four per cent of tested students at the University of Wisconsin were residents of the state. Those tested at Iowa were listed as "mostly from Iowa." At the University of Kansas 80 per cent of those tested were from the state and 96 per cent from Kansas or states immediately adjoining. At the University of New Mexico the situation was somewhat different, 42 per cent being recorded as natives while a considerable number were recent immigrants from the East. Among the latter group were numerous members of health-seeker families. Ninety per cent of the students tested at the University of Oregon were from the state and 98 per cent from Oregon or contiguous states. Of 2,900 students registered at San Jose State Teachers College in California only fourteen were from outside the state. Of the students tested at Stanford University, 74 per cent were from the state of California.

15. Dr. MacKinnon has written the authors that the rate for entrants for the year 1936-1937 is about 13 per cent lower than for the previous year.

However, this leaves the high rate for the University of Oregon still to be explained, and no explanation is offered at present.

The contrast between the Idaho schools in the Northwest and the New Mexico schools in the Southwest is almost certainly to be explained on the basis of the number of tuberculous families in the two regions and relative abundance of opportunity for contact. Shepard [3] reported a communication from Dr. Halvorsen of the University of Idaho to the effect that almost no students from the rural districts of Idaho react to tuberculin, while those from the mining districts of southern Idaho are apt to be positive reactors. New Mexico, on the other hand, has long been a resort for the tuberculous, and it seems inevitable that this fact would be reflected in the incidence of infection among students at the state university. Miss Ruth Connely, executive secretary of the New Mexico Tuberculosis Association, has communicated to us a fact interesting in this connection. In an extensive survey to determine the incidence of positive reactors to tuberculin in the schools of Albuquerque, a relatively low percentage of reactors was found in a large group of Spanish descent as compared with an equally large number of American ancestry. The former group came to school from mountain districts where their ancestors, original Spanish immigrants, had settled nearly three centuries before, while the group of American ancestry to a considerable extent were made up of children of health seekers who had come directly to take up residence in the urban centers of the state, such as Silver City and Albuquerque.

The higher incidence of infection in entering college men than entering women noted in this study conforms with the figures given by Ferguson,[4] who reported to the American Student Health Association that in the three years 1932-1935 lower figures for women than for men were recorded each year for the group of colleges reporting. It is an established fact that the mortality from tuberculosis is higher in young women than young men, and from this a corresponding morbidity might be argued. But this offers no evidence as to the mere incidence of infection, which is dependent on home and subsequent more casual contact. There is some reason to believe that, while the home contacts for the two sexes are approximately the same, boys are less restricted in their contacts outside the home and therefore have a greater opportunity for chance infection.

SUMMARY

1. During the academic years 1934-1936 statistics were gathered from American colleges using the standardized tuberculin adopted by the Committee on Medical Research of the National Tuberculosis Association; namely, purified protein derivative tuberculin.

2. The results for 18,744 students, chiefly new entrants, in twenty colleges reporting in the year 1935-1936 represent accurately completed tuberculin tests in which a strong standard dose of purified protein derivative was administered to all negative reactors to an initial small standard dose.

3. A geographic variation in the incidence of tuberculous infection was found, with relatively high rates (from 40 to 60 per cent) in the East and Far West and low rates (from 20 to 30 per cent) in the Central states. Since the majority of the students in the colleges reporting were residents of the general region of their college, the figures are believed to reflect the incidence of tuberculous infection in the populations of those regions. Excessive rates were found in regions noted as resorts for tuberculous patients.

4. In colleges reporting tests on large groups of young men and women of approximately the same average age, the rate of positive tuberculin reaction was higher in men than in women.

Seventh and Lombard streets.

THE USE OF BENZEDRINE SULFATE IN POSTENCEPHALITIC PARKINSON'S DISEASE

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In 1933, when benzedrine (beta-phenylisopropylamine) sulfate was first used in the treatment of narcolepsy,[1] it was noticed that the patients being treated not only stopped having their attacks but also reported that they tired less easily and felt more energetic in general. It was therefore thought advisable to experiment with benzedrine sulfate in conditions in which asthenia is a prominent symptom.

Twenty-eight patients with postencephalitic Parkinson's disease, ten patients with arteriosclerotic Parkinson's disease and twenty-two patients with psychoneurosis have been given benzedrine sulfate for periods varying from four weeks to sixteen months. The oldest patient in the postencephalitic group was 54, the youngest 15, with the average age 32. A history of encephalitis was definite in seventeen patients, was probable in four and could not be obtained in seven. The clinical picture was characteristic in every case, though the following signs varied from patient to patient: rigidity of the neck, trunk and extremities; loss of associated movements; tremor of the head, body or extremities; masklike facies, with slowness or absence of emotional expression; monotonous voice; slurred speech; loss of postural reflexes; oculogyric crises; increased salivation; oily skin; impairment of sleep mechanism (somnolence by day and insomnia by night); weakness, and easy fatigability and lack of "energy" (often complete inability to work).

All the postencephalitic patients were tried on benzedrine (benzedrine sulfate) alone; twenty-one were given scopolamine or stramonium alone, and, in addition, these drugs in combination with benzedrine in various doses. Twelve patients were tried on ephedrine sulfate (from three-eighths to three-fourths grain [0.024 to 0.048 Gm.] three times a day) alone and in combination with scopolamine or stramonium in order to compare the effectiveness of benzedrine with ephedrine. An effort was made to determine the regimen on which each patient felt the greatest benefit. The arteriosclerotic group was given benzedrine alone, scopolamine alone and the two in various combinations. The psychoneurotic group was given benzedrine alone.

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1. Prinzmetal, Myron, and Bloomberg, Wilfred: The Use of Benzedrine for the Treatment of Narcolepsy, J. A. M. A. **105**: 2051 (Dec. 21) 1935.

Since the evaluation of the results depended largely on the subjective accounts of the patients, efforts were made to reduce the effect of suggestion to a minimum. The patients were told that they were to try a new medicine which might not help them but could do them no harm. They were not told in what direction improvement might be expected; they were told, in addition, that some of the medicine might have no effect; finally they were urged to be very critical of any change since, if the medicine had no effect, there were other medicines and combinations that we then wished to try. In nineteen of twenty-eight cases the results were controlled by the substitution of blank pills, exactly similar in taste and appearance to the active pills, without the patient being informed of the change.

TABLE 1.—*The Improvement in Subjective Symptoms in Twenty-Eight Cases of Postencephalitic Parkinson's Disease in Which Benzedrine Sulfate Was Taken Either Alone or After Addition to a Scopolamine or Stramonium Regimen**

Case	Age	Sex	History of Encephalitis	Energy and Well Being	Drowsiness	Strength	Tremor	Rigidity	Oculogyric Crises	Ability to Work
1	16	♂	?	++	..	++	..	0	..	+
2	22	♂	+	+	+	+	++	+	..	+
3	42	♀	+	+	+	+	++	+	..	++
4	31	♀	0	++	++	++	0	+	..	+
5	19	♂	+	++	++	++	..	+	..	++
6	30	♀	+	+	+	0	..	+	+	0
7	43	♂	0	+	+	+	..	0	+	+
8	28	♂	?	+	+	+	0	+	..	+
9	38	♀	?	+	+	+	..	+	..	+
10	32	♀	+	+	++	+	..	0	..	+
11	50	♂	0	+	+	..	+	+	+	0
12	54	♂	+	0	0	0	0	0	..	0
13	34	♀	+	..	..	0	0	..	..	0
14	47	♂	+	+	+	0	..	+	..	0
15	32	♂	+	++	+	+	..	+	..	+
16	32	♂	+	+	++	+	0	+	..	+
17	37	♀	+	++	+	+	++	+	..	+
18	29	♂	+	+	+	..	..	+	..	+
19	41	♂	+	+	++	+	0	+	..	+
20	27	♂	+	+	++	+	0	0	+	0
21	30	♂	+	++	++	+	+	+	+	+
22	34	♀	0	+	++	+	+	++	..	+
23	31	♂	+	+	+	+	+	+	+	+
24	15	♂	+	+	++	+	0	+	..	+
25	31	♂	0	+	++	+	0	+	..	+
26	28	♂	?	..	..	0	..	..	+	+
27	43	♂	0	+	++	0	..	0	..	+
28	43	♂	0	+	..	0	..	+	..	+
Percentages:			68%	96%	93%	79%	44%	77%	100%	79%

* + indicates improvement; 0, no change; .., symptoms not present.

On each visit the patient was first allowed to make a spontaneous general report as to whether he was better, the same or worse and what the changes were; he was then asked specifically about feeling of energy and well being, drowsiness, strength, tremor, rigidity, oculogyric crises and ability to work. Untoward effects were reported. The general appearance of the patient, the facial expression, the manner of speaking and the performance of ordinary muscular movements were observed and compared on each visit. These observations were found to tally closely with the patients' subjective feelings.

RESULTS

In Postencephalitic Parkinson's Disease.—Beneficial effects from benzedrine alone, or from the addition of benzedrine to scopolamine or stramonium, were reported by twenty-six (93 per cent) of the twenty-eight patients in this group (table 1; only cases 12 and 13 failed to show improvement). The most uniform result was that of a feeling of increased energy and well being. This was remarked in twenty-five of the twenty-six cases in which lack of energy was a symptom, though expressed variously: "more pep," "more energy," "I feel more like doing things." Drowsiness and the necessity for frequent naps during the day was also eliminated completely in twenty-three of the twenty-four patients in whom these symptoms were found.

The following further reports were made: Twenty-two were able to do more work. One young man who had been practically helpless was able to get a job driving a truck; several women were able to resume their housework. Twenty patients observed a decrease in their muscular rigidity. Nineteen of the patients said they felt stronger. Seven patients observed a decrease or disappearance of their tremor, while nine noticed no change in tremor; the other twelve did not have tremor.

There were eight patients in the group who had frequent oculogyric crises. Scopolamine and stramonium had been effective in reducing the number of these attacks but had not succeeded in eliminating them. With the addition of benzedrine therapy the attacks completely disappeared in six patients, while their frequency and severity were greatly diminished in the other two; they recurred only when blanks were substituted for the active pills, the substitution being made in four cases. When given alone, benzedrine abolished the attacks of only two but reduced the frequency in the other six.

In every instance in which blank pills were given the next report of the patients indicated that the beneficial effects they had previously noticed had now disappeared. The manner of the reports varied considerably. Most of the patients came in discouraged, saying that the new medicine was no good after all, that perhaps its effects had worn off, that they might have acquired a tolerance for it. They related in detail all the original symptoms that had recurred. Two patients after being given blanks did not return to the clinic at all and had to be sent for. Five patients guessed that they had been given inactive pills as a test. Two said that, while they did not feel quite as bad as they did when they first came in, most of the improvement was gone.

It is of interest that of the two patients who had no improvement from benzedrine sulfate one had severe thalamic pain and the other complained only of tremor and slight rigidity.

Improvement was noted in only fifteen (53.6 per cent) of the twenty-eight patients when benzedrine was used alone; in two of these the improvement was felt to be equal to the effect from the combination of benzedrine with scopolamine or stramonium; in both of these cases, lack of energy and drowsiness were the outstanding symptoms.

Of the twelve patients on whom ephedrine was used alone, ten definitely felt no beneficial effect; that is, their symptoms grew worse. One felt that ephedrine was as effective as benzedrine and one could not be sure. Of the twelve patients on whom ephedrine plus scopolamine was used, seven were worse, two felt a slight benefit, and three felt as much benefit as on benzedrine therapy. These three were among the mildest cases in the group. Table 2 shows a graphic comparison of the beneficial effect of the various medications used in these cases.

Objectively, brief tests of muscular rigidity and strength were made on twelve patients. With regard to the degree of tremor, no reliable method for objective comparison was available, so that the patients' subjec-

tive account had to be accepted. Timing for ten-second periods of the rapidity of complete flexion and extension of the arm at the elbow, also pronation and supination of the hand and forearm, were used to measure rigidity. Improvement as shown by the tests was considered definite only when the rapidity of movement was at least doubled during the test period. A simple spring dynamometer was used to test the strength of the grip. The best of three efforts was taken each time as the result of this part of the test.

The results of these tests were as follows: One patient out of five who were tested showed definite decrease in rigidity on benzedrine alone, while three out of these five showed definite improvement on scopolamine alone. When benzedrine and scopolamine were used in combination, of the seven who were tested, definite improvement could be demonstrated only in the four who benefited from scopolamine or benzedrine alone. There was no definite increase in strength in four patients on benzedrine alone or on scopolamine alone; two out of seven patients on benzedrine and scopolamine together, however, did show definite increase in strength. In other words, benzedrine had little objective effect on rigidity or strength, whereas scopolamine or stramonium was more effective in combating rigidity while equally ineffective in improving strength.

Five of the patients who received ephedrine were tested in the same manner: there was definite improvement similar to that obtained with benzedrine therapy in one; ephedrine plus scopolamine led to definite improvement in two, the same two that showed definite improvement on benzedrine and scopolamine; from the objective standpoint, therefore, benzedrine and ephedrine were similar in their failure to produce definite objective improvement in muscular strength and rigidity in the majority of cases.

In Arteriosclerotic Parkinson's Disease.—Benzedrine was given to ten patients with the arteriosclerotic type of Parkinson's disease. The ages of these patients varied from 58 to 76, the average age being 70. The chief complaints were coarse tremor of the extremities, muscular rigidity and, in contradistinction to the postencephalitic group, a degree of mental agitation which in two was extreme. The results were as follows: Six were worse, three remained unchanged and one felt better. When benzedrine was added to scopolamine or stramonium, of six patients two felt worse, three were unchanged and one felt better. The one patient who felt better in each instance had only very mild symptoms and was benefited also by blanks. Of the nine patients who were not helped by benzedrine, seven were helped by scopolamine while the other two were not helped by any medication. The untoward effects noted in the six who were made worse by benzedrine were insomnia in all six, restlessness and irritability in four, increased tremor in three, anorexia in three, and nausea and vomiting in two.

In Psychoneurosis.—Benzedrine sulfate was given to twenty-two selected patients with various forms of psychoneurosis in whom the chief complaints were also lack of energy, drowsiness, weakness and easy fatigue. Most of these patients were seen concurrently with the postencephalitic group. The procedure used in the two groups was identical. Yet in only two (9 per cent) of the psychoneurotic patients was there definite subjective improvement in asthenic symptoms as contrasted with the improvement noted in 93 per cent of the postencephalitic group. This improvement was controlled by the substitution of blank pills in the patients who were benefited by benzedrine.

DOSAGE

The usual maintenance dose of benzedrine sulfate was from 10 to 20 mg. taken orally two or three times a day.[2] In one patient 5 mg. twice a day was the optimum dose. As much as 160 mg. a day for three weeks was taken by one patient without apparent harmful effect. We usually started with 5 or 10 mg. before breakfast and lunch and increased the dose gradually until the maximum therapeutic effect was obtained.

TABLE 2.—*A Comparison of Symptomatic Improvement of Twenty-Eight Cases of Postencephalitic Parkinson's Disease in Which Benzedrine Sulfate, Scopolamine (or Stramonium), Ephedrine and Combinations of These Drugs Were Taken**

Case	On Benzedrine Sulfate Alone	On Scopolamine or Stramonium Plus Benzedrine Sulfate	Disappearance of Improvement After Substitution of Blanks for Benzedrine Sulfate	On Scopolamine or Stramonium	On Ephedrine Sulfate	On Scopolamine or Stramonium Plus Ephedrine Sulfate
1	++	..	..	..	..	..
2	++	..	..	..	..	..
3	++	..	+	..	..	..
4	++	..	+	..	..	..
5	+	++	+	+	..	..
6	0	++	+	+	..	..
7	+	..	..	..	..	..
8	+	++	+	+	0	0
9	+	++	+	+	±	±
10	+	++	+	+	+	+
11	+	++	+	+	..	..
12	0	0	..	+	..	..
13	0	0	..	+	0	0
14	+	..	..	..	..	..
15	+	..	+	..	..	..
16	+	++	+	+	..	..
17	0	++	+	+	..	..
18	0	+++	+	++	0	0
19	0	++	..	+	..	..
20	0	++	+	+	..	..
21	+	++	+	+	0	0
22	0	++	+	+	0	0
23	0	++	+	+	0	+
24	0	++	+	+	0	0
25	0	++	..	+	..	..
26	0	+++	+	++	0	++
27	+	++	+	+	0	±
28	0	+	..	0	0	0

* The number of +'s indicates the relative degree of improvement; ±, doubtful improvement; 0, no improvement.

Scopolamine hydrobromide from 1/200 to 1/100 grain (0.3 to 0.6 mg.) or stramonium leaves 2½ to 5 grains (0.16 to 0.32 Gm.) were given two or three times a day, both alone and in combination with benzedrine in most cases, in an attempt to determine the most effective regimen.

The duration of action of an individual dose of benzedrine varied from three to seven hours, though most patients reported that beneficial effects began to wear off in four or five hours. Patients, particularly those with oculogyric crises, felt the effect of benzedrine come on in from fifteen to twenty minutes.

UNTOWARD EFFECTS

Transient untoward effects were noticed by twelve (43 per cent) of the postencephalitic patients. Eleven

2. All the benzedrine sulfate and other medication used, together with the blank pills, were furnished by Smith, Kline & French Laboratories, Philadelphia.

commented that they did not sleep well the first few nights following the beginning of treatment. The relative insomnia usually lasted no more than three days and usually wore off without the necessity of reducing the dosage of benzedrine. It was possible to eliminate this untoward action in most cases by starting the benzedrine slowly: 10 mg. on arising the first day with no further treatment that day, and 10 mg. morning and noon the next day, the dosage being increased thereafter as indicated. Evening doses were not given except in instances when patients did not wish to go to sleep until late. Dizziness or light headedness and a feeling of undue nervous tension appeared for a day or two at the beginning of the treatment in six cases and recurred temporarily when the dosage was increased later in three. Excessive restlessness and excitement occurred temporarily in two cases. These symptoms occurred on 20 mg. of benzedrine a day in one and on 40 mg. a day in the other and were eliminated by halving the dose in each case. Later the symptoms did not reappear when the dosage was raised to 30 mg. a day in each case. Nausea, anorexia and vomiting occurred on the first day of treatment in one case. Four patients noticed that their mouths and tongues were drier than usual while taking benzedrine.

It is interesting to mention here that two of our male patients, who had not taken scopolamine or other depressant drugs, reported that benzedrine sulfate produced in them an increase in sexual potency.

The effect of benzedrine on three other patients not otherwise included in this paper should be mentioned here. Two of these were women with involutional melancholia in whom asthenia was prominent among a great variety of other symptoms. Following the first few doses of the drug, both these patients became much worse generally, complained more about their symptoms and were so obviously agitated that commitment became necessary. The benzedrine apparently influenced the symptomatology of the psychosis, precipitating an active phase in place of the former depression in these two individuals. The third patient, a man aged 26, had been seen by a number of neurologists and psychiatrists because of peculiar "spells" and because of maladjustment and personality difficulties following an attack of probable encephalitis. A presumptive diagnosis of narcolepsy was made and the patient did fairly well on ephedrine for a time. When he changed to benzedrine he at first was much improved. When the dosage was raised from 40 to 60 mg. a day paranoid ideas and auditory hallucinations developed for the first time and the patient had to be hospitalized.

Thus far we have seen no evidence to indicate either an increasing tolerance to the drug or habit formation. Several patients who had taken the drug for six months or more were asked how they felt when it was withdrawn for periods up to three weeks; they all said their unpleasant symptoms returned and they felt worse, but not worse than they felt before ever taking the drug. The first patient with narcolepsy reported by Prinzmetal and Bloomberg[1] is still taking the same dose after three years. The possibilities of habit formation or of late untoward effects are, however, not conclusively ruled out by these observations or by others published to date. For this reason and because of the untoward effects that have been noted, the indiscriminate use of benzedrine is undesirable.

SUMMARY

The effect of benzedrine (beta-phenylisopropylamine) sulfate was studied in twenty-eight patients with postencephalitic Parkinson's disease. The dose varied from 10 to 160 mg. orally per day, either alone or in combination with scopolamine or stramonium. The study was controlled by the substitution of blank pills in nineteen of the patients and by the administration of benzedrine to a group of twenty-two psychoneurotic patients, all of whom complained chiefly of asthenia similar to the patients with postencephalitic Parkinson's disease. The effect of ephedrine was compared with benzedrine in ten patients. Benzedrine sulfate was tried in ten patients with arteriosclerotic Parkinson's disease.

The results in the postencephalitic group, which signify benefit derived from benzedrine alone or from the addition of benzedrine to an adequate scopolamine or stramonium regimen, were as follows: There was subjectively increasing energy in twenty-five out of twenty-six patients (those who complained of lack of energy), 96 per cent; disappearance of drowsiness in twenty-three out of twenty-four, 95 per cent; increased feeling of strength in nineteen out of twenty-six, 73 per cent; decreased or abolished tremor in seven out of fifteen, 44 per cent; subjectively decreased muscular rigidity in twenty out of twenty-six, 77 per cent; disappearance of oculogyric crises in six of the eight patients who had this symptom, and greatly diminished frequency and severity of the symptom in the other two, and increased ability to work in twenty-two cases, 79 per cent.

Benzedrine alone was beneficial in fifteen cases, 53.6 per cent, but this effect was equal to the effect of the combination with scopolamine or stramonium in only two cases, 7 per cent. In all, twenty-six of the twenty-eight patients (93 per cent) showed definite improvement directly traceable to benzedrine. In every instance, when blank pills were substituted for benzedrine, beneficial effects were no longer reported and the original symptoms returned. Ephedrine alone was effective in one out of twelve cases; the addition of ephedrine to scopolamine or stramonium caused improvement in five out of twelve, but this improvement was equal to the benefit derived by adding benzedrine to scopolamine or stramonium in only three.

As to the results of the objective tests, rigidity was demonstrably decreased in a number of cases by the use of scopolamine or stramonium, while benzedrine and ephedrine were much less effective. There was no consistent increase in strength from any of the modifications used.

None of the ten patients in the arteriosclerotic group were benefited by benzedrine, while untoward symptoms appeared in six. In the psychoneurotic group only two patients out of twenty-two, 9 per cent, seemed to be benefited by benzedrine.

CONCLUSIONS

1. Benzedrine sulfate is a useful drug in the symptomatic treatment of postencephalitic Parkinson's disease.

2. Used alone, benzedrine sulfate is effective in this condition when symptoms of drowsiness and lack of energy predominate, but usually it is most effective when used in combination with scopolamine or stramonium.

3. Although improvement in muscular rigidity and strength from the use of benzedrine sulfate was not

conclusively demonstrated by means of objective tests, these symptoms were subjectively improved in more than 70 per cent of the cases.

4. Benzedrine sulfate seems to act almost specifically in abolishing or reducing the number and severity of oculogyric crises.

5. Benzedrine sulfate was of no value in ten cases of arteriosclerotic Parkinson's disease.

6. Benzedrine sulfate was of no value in twenty out of twenty-two cases of psychoneurosis with asthenia as a prominent symptom. In both this group and the group presenting arteriosclerotic Parkinson's disease, untoward effects frequently developed.

7. Benzedrine sulfate apparently has a greater stimulating action on the central nervous system than ephedrine.

8. Until more is known about the action of this drug, it should be used with caution.

REPORT OF CASES

CASE 3.—Mrs. E. J., aged 42, a housewife, had encephalitis in 1919. In 1932 she first noticed tremor of the left arm and generalized muscular rigidity.

When seen, April 3, 1934, her presenting complaints were of feeling "tired," "dopey-like," having "no energy at all," and inability to do her housework. On examination it was noticed that the patient's voice was dull and monotonous and that she stared fixedly. There was generalized muscular rigidity, cog-wheel in character, greater on the left side. There was a rhythmic coarse tremor of the left hand and arm. Postural reflexes were markedly impaired and there was a loss of associated movements.

The patient was given 10 mg. of benzedrine sulfate, morning and noon, and on April 5 she reported: "My nerves are more quiet," "I don't shake so much," "I don't feel quite so tired as I did." She said that her sleepiness during the daytime had entirely disappeared but that she also noticed that she had not slept well at night. The benzedrine sulfate was continued and the morning dose was increased to 20 mg.

April 10 the patient reported "I'm getting alone fine now. The medicine makes me feel much better. I don't feel sleepy and dopey the way I used to. I don't shake half as much as I did, and I'm not so stiff." She added that she was now doing all her own housework, including the washing. The other day she had even cleaned the stove—"something I haven't done for years." Her sleeping at night was back to normal. It was the impression of the examiner that the patient looked much brighter and livelier and talked with more inflection in her voice. She was given benzedrine in solution in the same dosage.

April 15 she reported that the liquid medicine was exactly the same as the pills. All the beneficial effects had continued. She was now given blank pills without being told of the change.

April 22 the patient reported: "These pills had no effect at all. I stopped after taking them twice. I feel the same now as before I came to you." She was given the active pills again.

April 29 she said she "noticed the difference right away." All her improvement had come back again. She was even able to wash the floor.

CASE 8.—J. S., a single, unemployed man, aged 22, had noticed stiffness, tremor and some clumsiness especially of the left arm and leg for three or four years. He remembered having diplopia for one day in 1919; other evidence pointing to encephalitis was lacking.

When first seen, Jan. 9, 1936, he complained chiefly of lack of energy, easy fatigue and "tapping" of the left foot. He had a monotonous, rather explosive manner of speaking, masklike face, with cog-wheel rigidity and rhythmic coarse tremor of all the extremities.

He was given 10 mg. of benzedrine sulfate morning and noon. He reported, January 27, that he felt very much better with "more pep and less shakes," and asked for more of the new medicine. He was given blanks. The day following he returned saying "I had no effect at all after the last pills." He was given active pills and except for infrequent insomnia and tremor he got along quite well. May 4 he reported feeling rather poorly, having lost weight. He was given 25 mg. of benzedrine sulfate and stramonium leaves 2½ grains (0.16 Gm.) three times a day. In a week he noticed improvement in all his symptoms, saying "I haven't felt better in a long time." Blanks were then substituted for the benzedrine sulfate and he returned May 16 feeling very drowsy and tired out and with a marked speech defect. Resumption of active pills allayed these symptoms; omission of the stramonium May 27 was followed in a few days by some exacerbation of rigidity and tremor but not any of the more subjective symptoms.

When last seen, again on the combined medication, he had gained 10 pounds (4.5 Kg.) and had been doing some carpentering about his home, which he had previously been unable to do.

CASE 11.—G. F., an unemployed man, aged 30, without any direct or indirect history of encephalitis, began at the age of 16 to have tremor and rigidity, first in the right hand, then in the left, and finally in the legs. His speech became slurred and difficult and finally he began to have oculogyric crises, which were now occurring four or five times a week, whenever he "got excited" or used his eyes too much.

When seen Feb. 4, 1936, physical examination revealed tremor and rigidity of all extremities, more on the left side, markedly impaired postural reflexes and associated movements, mumbling, monotonous, almost unintelligible, speech, marked salivation with drooling at the mouth, and an almost constant fluttering of the eyelids. He was taken off the tincture of stramonium (from 60 to 100 minims [3.6 to 6 cc.] three times a day), which he had been taking, and was given 10 mg. of benzedrine sulfate twice a day; he returned in four days saying that he felt worse, though he seemed more alert to the examiner.

He was then put on stramonium leaves 2½ grains (0.16 Gm.) plus 5 mg. of benzedrine sulfate three times a day. He returned in two weeks and said that he felt fine. He had much more energy, had been able to play baseball and, most striking of all, had had only one oculogyric crisis, despite the fact that he had been "excited" several times and had done a good deal of reading.

The following week he caught cold and his symptoms returned. The dose of benzedrine was then doubled and for the next two months he felt quite well. During this entire period he had only one mild oculogyric crisis, and that accompanied a severely upset stomach following the Passover feast. He played tennis and baseball; his speech became intelligible, a fact remarked on by his friends; he no longer felt like sleeping during the day; his tremor and rigidity also seemed decreased.

May 12, blanks were substituted for the benzedrine, the stramonium being continued. He returned May 19 saying—and looking as if—he had slowed up in every way; he had become "nervous and stiff" and had had three oculogyric crises. Ten milligrams of benzedrine sulfate intramuscularly had no effect after an hour on the oculogyric crisis he was having at the time. On resumption of the active pills, however, he straightened out as before and has had no further oculogyric crises to date.

CASE 18.—J. E., an unemployed man, aged 29, had encephalitis in 1918. About ten years later he began to notice that his movements were slower than normal. About five years ago his eyelids first began to "flicker" uncontrollably and finally he began to have oculogyric crises. He had taken scopolamine for seven years off and on, as much as sixteen $\frac{1}{100}$ grain (0.00065 Gm.) pills a day. He had noted that it usually helped to control the oculogyric crises.

When we saw him for the first time, Feb. 10, 1936, he complained chiefly, in addition to his eyes, of slowness of thoughts and action: "I have to think of every movement I make—I can't seem to make any unconscious movements at all." He had never noticed tremor or rigidity. Physically he was in good general condition and seemed normal in every way except for a blank, expressionless face, glassy wide-open eyes, monotonous jerky speech, and an avoidance of all unnecessary movements.

He was given 10 mg. of benzedrine sulfate twice a day in addition to the eight or nine scopolamine $\frac{1}{100}$ grain pills that he had been taking. Drowsiness, slowness and indecision were greatly improved and oculogyric crises were entirely abolished for about three weeks. Blanks were then substituted for the benzedrine and the patient returned in two days with recurrence of all the presenting symptoms, especially the oculogyric crises. Benzedrine was resumed and these symptoms disappeared. A few weeks later a brief omission of scopolamine,

with the patient's knowledge, was attended by temporary reappearance of severe eye symptoms.

CASE 22.—Miss C. M., aged 34, unemployed, complained of marked rigidity and slight tremor of all extremities, lack of energy, drowsiness, general asthenia, anorexia and oculogyric crises occurring about two or three times a week. Her symptoms began at the age of 14 years and had become somewhat worse in recent years. There was no history of encephalitis.

When seen, April 24, 1936, her posture was rigid with the head thrust forward, and the arms and legs revealed considerable rigidity of the cog-wheel type on passive movement; she had a masklike facies, a monotonous voice, and increased deep tendon reflexes; otherwise the physical examination was negative. She had taken scopolamine and tincture of stramonium in varying doses from time to time with some benefit. For the past three months she had been taking scopolamine 1/100 grain three times a day.

Scopolamine was omitted and she was given 10 mg. of benzedrine sulfate twice a day. April 24 she returned feeling worse: "I feel all slowed up; my legs won't work so well." Her appetite also was poorer. However, she did not feel as drowsy as before. During the next two weeks she was given ephedrine sulfate three-eighths grain (0.024 Gm.) three times a day for the first week and three-fourths grain (0.05 Gm.) in the second. At the end of this period she felt a great deal worse in every way and presented all the classic symptoms of advanced Parkinson's disease, including frequent oculogyric crises. May 15 she was given scopolamine 1/100 grain plus ephedrine three-fourths grain and in a week she returned feeling considerably better, but the eyes still bothered her. Omission of ephedrine had no effect one way or the other for four days following this.

May 28, 10 mg. of benzedrine sulfate twice a day was added to the scopolamine. The improvement in all the symptoms was then striking. She felt stronger, she had much more energy and a better appetite, there was much less rigidity, and tremor had disappeared. Oculogyric crises disappeared completely for three weeks. At this time, June 19, she ran out of benzedrine and was unable to get to the hospital for more for four days; she continued to take scopolamine, however. On the first day on which she took no benzedrine she had three oculogyric crises and her drowsiness, lack of energy, rigidity and anorexia returned. On resumption of the benzedrine with the scopolamine she was at once relieved and had remained so when last seen.

CASE 24.—J. B., an American schoolboy, aged 15 years, had encephalitis at the age of 3. About a year later his mother first noticed rigidity and tremor of the left arm and soon afterward of the left leg. This grew progressively worse and gradually there developed thickness of speech, some difficulty in swallowing, drowsiness, and lack of energy amounting at times to a marked apathy.

He was first seen April 14, 1936, at which time he was thin and malnourished, with a rigid, markedly tremulous and practically useless left arm, a rigid weak left leg which dragged when he walked, masklike facies with mouth hanging open and saliva running out of the corners, monotonous unintelligible speech, impaired postural reflexes, and increased deep tendon reflexes slightly more active on the left. Plantar responses were normal. He had received no treatment for several years.

He was given 10 mg. of benzedrine sulfate twice a day for one week without effect. Ephedrine three-eighths grain and later three-fourths grain three times a day was without apparent effect. May 5 he was given ephedrine three-fourths grain plus scopolamine 1/100 grain three times a day. When seen May 12, definite improvement had been noted. Tremor and rigidity were diminished, he felt stronger and he could walk, talk and use his left arm better. Omission of ephedrine while he continued the scopolamine did not alter the improvement.

May 21, 5 mg. of benzedrine sulfate three times a day was added to the scopolamine and on his return, June 5, his mother said "He is a different boy; all the neighbors have noticed it . . . he has so much pep and ambition and seems so cheerful . . . he still shakes as much but he can use his arm better, and now he can run. . . . Every one can understand what he is saying now." Increasing the dose of benzedrine caused him to have "bad dreams" and lose his appetite, so he was maintained on the original dose and when last seen, July 1, he was getting along very well, in an improved condition.

THE STIMULATING ACTION OF BENZEDRINE SULFATE

A COMPARATIVE STUDY OF THE RESPONSES OF NORMAL PERSONS AND OF DEPRESSED PATIENTS

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Benzedrine (beta-phenylisopropylamine) is a chemical compound related in structure and action to ephedrine and epinephrine. Barger and Dale [1] described this drug in 1910 as a member of a group of similar substances to which they gave the name sympathomimetic. The interest of investigators was centered on ephedrine until 1930, when benzedrine first received consideration.

At that time this compound was used in pharmacologic studies conducted on animals by Piness, Miller and Alles,[2] Hartung and Munch,[3] Alles,[4] Tainter [5] and Alles and Prinzmetal.[6] At first their attention was focused on the peripheral effects of the drug, but a marked action on the higher centers of the central nervous system was also noted. About the same time benzedrine was given prominence as an astringent to the human nasal mucosa, chiefly through the work of Bertolet,[7] Byrne,[8] Scarano [9] and Wood.[10] It was observed that overdosage, particularly in the latter part of the day, was prone to result in insomnia.[6] Other physiologic actions were investigated by Myerson and Ritvo,[11] who reported on the relief of spasm of the gastro-intestinal tract by the use of this compound. A pressor action was noted, and this and other physiologic effects were studied by Myerson, Loman and Dameshek.[12]

The profound central stimulation noted in animals was found to be present in the human being by Prinzmetal and Bloomberg,[13] who reported benzedrine much more effective than ephedrine in treating narcolepsy.

From the Syracuse Psychopathic Hospital and the Department of Psychiatry of the Syracuse University College of Medicine, Dr. Harry A. Steckel, director. A number of the patients were studied at the Manhattan State Hospital and a few at the Hospital for Joint Diseases, New York City.

1. Barger, G., and Dale, H. H.: Chemical Structure and Sympathomimetic Action of Amines, J. Physiol. 41:19, 1910.
2. Piness, George; Miller, Hyman, and Alles, G. A.: Clinical Observations on Phenylaminoethanol Sulfate, J. A. M. A. 94:790 (March 15) 1930.
3. Hartung, W. H., and Munch, J. C.: Amino Alcohols: VI. The Preparation and Pharmacodynamic Activity of Four Isomeric Phenylpropylamines, J. Am. Chem. Soc. 53:1875, 1931.
4. Alles, G. A.: The Comparative Physiological Action of dl-Beta-Phenylisopropylamine: I. Pressor Effect and Toxicity, J. Pharmacol. & Exper. Therap. 47:339 (March) 1933.
5. Tainter, M. L.: Comparative Actions of Sympathomimetic Compounds: Phenyl and Substituted Phenyl Derivatives, Nonphenylic Ring Compounds and Aliphatic Amines, Arch. internat. de pharmacodyn. 46:192 (Oct. 15) 1933.
6. Alles, G. A., and Prinzmetal, Myron: The Comparative Physiological Actions of the dl-Phenylisopropylamines: II. Bronchial Effect, J. Pharmacol. & Exper. Therap. 48:161 (June) 1933.
7. Bertolet, J. A.: Benzyl Methyl Carbinamine Carbonate, M. J. & Rec. 136:75 (July 20) 1932.
8. Byrne, H. V.: The Use of Benzyl-Methyl-Carbinamine-Carbonate in the Treatment of Rhinitis, New England J. Med. 209:1048 (Nov. 23) 1933.
9. Scarano, J. A.: Rapidity of Shrinkage and Immediate and Secondary Reactions Following Local Applications of Ephedrine and Benzedrine, M. Rec. 140:602 (Dec. 5) 1934.
10. Wood, E. L.: A New Drug for Treatment of the Eustachian Tube and Middle Ear, Arch. Otolaryng. 21:588 (May) 1935.
11. Myerson, Abraham, and Ritvo, Max: Benzedrine Sulfate and Its Value in Spasm of the Gastro-Intestinal Tract, J. A. M. A. 107:24 (July 4) 1936.
12. Myerson, Abraham; Loman, J., and Dameshek, William: Physiologic Effects of Benzedrine and Its Relationship to Other Drugs Affecting the Autonomic Nervous System, Am. J. M. Sc. 192:560 (Oct.) 1936.
13. Prinzmetal, Myron, and Bloomberg, Wilfred: The Use of Benzedrine for the Treatment of Narcolepsy, J. A. M. A. 105:2051 (Dec. 21) 1935.

This was confirmed by Ulrich, Trapp and Vigdoff [14] and by Nathanson.[15] Peoples and Guttmann [16] studied the pressor effect and reported concomitant alterations of mood in normal and psychotic individuals. Myerson [17] recently investigated changes in mood and fatigue resulting from this compound in normal and neurotic persons.

Because of this central stimulating action, the possibility of employing this drug in the treatment of psychiatric cases naturally presented itself. One of us (E. D.) reported the result of benzedrine therapy on a series of self-absorbed and normal persons.[18] Nathanson [15] reported definite stimulation of the central nervous system in normal individuals. He also found the drug to have a favorable action in states of persistent exhaustion and ready fatigability. Further investigations of the effect of this compound on depressed psychotic and psychoneurotic patients were indicated and are incorporated in this communication.

METHOD OF INVESTIGATION

The sulfate salt of benzedrine was given to a number of individuals representing each of the following five groups: normal, self-absorbed organic, self-absorbed dementia praecox, depressed manic-depressive, and depressed psychoneurotic. After a period of careful physical and mental observation each of these individuals received daily for from ten days to two weeks an oral dose of benzedrine sulfate, usually from 10 to 30 mg., except in instances in which the drug was prematurely discontinued because of undesirable reactions. The effect of the medication was observed in mood, speech, motor responses and general efficiency. The structure of the psychosis (or neurosis), the total personality, the untoward manifestations and, whenever possible, the subjective sensations were also studied. None of the subjects except two of the normal group were acquainted with the nature of the medication.

EFFECT ON THE NORMAL GROUP

The effect of benzedrine was studied on ten normal individuals. Seven showed elevation of mood, seven overtalkativeness, and ten increase in both motor activity and general efficiency. In addition, five subjects exhibited a state of increased irritation. Three of the ten patients complained of fatigue during the administration of the drug, but several of the subjects who were fatigued prior to receiving it found that this symptom had disappeared. Two of the subjects suffered from lassitude after the medication was discontinued. Two others spontaneously requested more benzedrine after the period of administration was terminated. Other manifestations reported were flushing of the face; generalized feeling of warmth; sweating; greasiness of the skin; sensations of constriction, fulness or aching of the head; increase of the nasal secretion; injection of the conjunctivae; parching of the mouth and the throat; peculiar taste; anorexia; loss of weight; frequency of the bowel and the bladder function; constipation; abdominal cramps; throbbing pulse; consciousness of the heart action; tension of the muscles; burning of the feet; insomnia; malaise and fatigue; dulness and forgetfulness; confusion, and inability to concentrate.

The following are illustrative cases:

CASE 1 (L. F.).—Blood pressure: before, 100/70; greatest variation after, 100/85. Three hours after the first medication the subject complained of heaviness of the head and a feeling of thirst. One hour later he became very active. He telephoned for flowers to be sent to a sick friend, but shortly after, becoming impatient, he hurried several miles to the florist shop and delivered the gift in person. He said "I wanted action, and I got it!" Later he complained of tension in his muscles and of fatigue. He slept well that night. The second day he noticed a general feeling of depression, increased frequency of urination and increased nasal secretion. The next day he perspired freely and his face became flushed; he was restless, "felt like reeling" and was mentally dull and retarded. On the fourth day he "felt terrible and groggy" and noted that his eyes were "red." On the next day he was "pepped up" and mentally alert. The following day he was annoyed by trivial errors in his work. Throughout the remainder of the period he continued to sleep poorly, made many of the same complaints and toward the end became forgetful.

CASE 2 (W. M.).—Blood pressure: before, 120/80; greatest variation after, 95/75. One hour after taking the medication the subject noticed perspiration and complained of a peculiar taste. Within six hours he noted increased activity and alertness. He called his superior officer on the telephone, insisted on taking an examination for which he was not eligible and became quite agitated during the discussion. He was embarrassed about the incident a few hours later. On the third day he noted exaggerated and prolonged physical and mental alertness. On the fourth day general sluggishness and malaise, clamminess of the skin, vague abdominal cramplike pains, and frequency of urination and defecation were present. On the seventh day he was depressed and complained of headache. After the eighth day he observed, in addition, greasy skin; pulse, at first rapid, then slower; increased physical and mental activity; feeling of warmth; loss of appetite, and decreased requirement of sleep. He noticed a burning sensation in his feet, a throbbing in the parietal region and a dull frontal headache. After the drug was discontinued he felt depressed and fatigued for several days.

CASE 4 (E. R.).—The medication was taken on several days when the subject was suffering from undue fatigue caused by lack of sleep. Within one hour there was a sense of warmth over the whole body and a feeling of well being, and the fatigue appeared to lessen or to disappear. There was a tendency to be overtalkative, a drive to do many things. He undertook many small accumulated tasks that were usually unpleasant and found pleasure in getting them accomplished. He was flowery in his speech, mildly euphoric, oversolicitous in his attitude toward others, and concerned with trifles. He reported that his mind was racing ahead of his physical accomplishment and he planned his program hours in advance, revising it as each hour passed. The feeling of warmth gave way to perspiration, and he noticed some restlessness and inability to sit quietly. There was frequency of urination, and the bowel movements were unusually copious and accompanied by mild abdominal cramps. There was at times a fulness in the head and a tendency to be irritable. At night there was some "let down" in the mood, but no definite fatigue. Sleep was moderately reduced, but the next morning he felt nothing out of the ordinary.

In addition, in other cases, the following observations were reported:

CASE 3 (J. O.).—On the first day the subject felt alert and happy and did not require much sleep. He said that he was more active and seemed stimulative. However, after the third day, except for slight exhilaration, the effects disappeared and he noticed nothing worthy of mention for the rest of the period.

CASE 5 (E. D.).—The first day the subject's sensations were those of jumpiness and irritability, a feeling of being on edge, and a tendency to hair trigger-like reactions and responses. He was impulsive and resentful of criticism. During a telephone conversation with his superior officer in which he was being reprimanded he abruptly hung up. Next day he was markedly overtalkative, facetious and joked about trivialities

14. Ulrich, H.; Trapp, C. E., and Vigdoff, B.: The Treatment of Narcolepsy with Benzedrine Sulfate, Ann. Int. Med. **9**: 1213 (March) 1936.
15. Nathanson, M. H.: The Central Action of Beta-Aminopropylbenzene (Benzedrine), J. A. M. A. **106**: 528 (Feb. 13) 1937.
16. Peoples, S. A., and Guttmann, E. H.: Hypertension Produced with Benzedrine, Lancet **1**: 1107 (May 16) 1936.
17. Myerson, Abraham: Effect of Benzedrine Sulfate on Mood and Fatigue in Normal and in Neurotic Persons, Arch. Neurol. & Psychiat. **36**: 816 (Oct.) 1936.
18. Davidoff, Eugene: A Clinical Study of the Effect of Benzedrine Therapy on Self-Absorbed Patients, Psychiatric Quart. **10**: 652 (Oct.) 1936.

that were usually unnoticed. On succeeding days these sensations diminished, and after the fifth day no reactions were noted.

Case 6 (B. I.).—After medication on the first day the subject experienced a feeling of anxiety, felt his pulse throbbing and noted an inability to concentrate. He had a feeling of physical fitness and well being and was mentally stimulated and under tension. On the last day he felt tired.

Case 7 (C. W.).—About one hour after medication the subject felt an urge to talk, which continued about two hours. The second day he felt sleepy for a short time, then became exhilarated and later irritable and "jumpy." For the rest of the week he felt only slightly exhilarated, and no marked change was noted.

Case 8 (P. R.).—After taking benzedrine the subject was forgetful, shaky, irritable, jittery, restless and tense. On the last day he had a feeling of mental and physical stimulation but complained that he could not relax.

Some of these effects on the normal person have been previously mentioned by one of us.[15] Myerson [17] reported that normal individuals suffering from mild fatigue with small doses of benzedrine experienced immediate relief of a pleasant sort and became calm. With 30 mg. several of the patients felt "jittery." Nathanson [15] stated that most normal individuals after a dose of from 20 to 30 mg. of benzedrine showed quite regularly one or more of the following effects: euphoria, a feeling of exhilaration, lessening of fatigue, and increased energy and capacity for work and talkativeness.

Table 1.—*Effect of Benzedrine Sulfate: Psychoneurotic Group*

Case	Constitution	Elevation of Mood	Talkativeness	Motor Activity	General Efficiency
1. I. W.	Pyknic† (neurasthenia)...	+	Slight	+	+
2. F. H.	Asthenic* (hysteria).....	+	+	Slight	—
3. S. G.	Asthenic† (hysteria).....	Slight	—	+	Slight
4. P. D.	Asthenic* (hysteria).....	—	+	—	—
5. T. B.	Dysplastic† (hysteria)...	—	+	—	—
6. Z. S.	Asthenic† (neurasthenia)..	—	Slight	—	—
7. A. B.	Dysplastic† (hysteria)...	—	Slight	—	—
8. M. S.	Pyknic† (hysteria).....	—	—	Slight	—
9. H. C.	Pyknic* (neurasthenia)...	—	—	—	—
10. H. C.	Asthenic† (neurasthenia)..	—	—	—	—
Positive results.....		3	6	4	2

* Cases studied at the Syracuse Psychopathic Hospital.
† Cases studied at the clinic of the Hospital for Joint Diseases, New York.

Effect on the Organic Group

The effect of benzedrine was studied on ten self-absorbed individuals in the organic group. Five evidenced elevation of mood, seven overtalkativeness, eight increase in motor activity and eight increase in general efficiency. In addition, three showed a state of increased irritation. There was no change in the total personality or the structure of the psychosis in any of the cases. The most consistent improvement was noted in the alcoholic and in the traumatic cases. In those patients in whom any effects were noted the subjective sensations appeared to follow the pattern of the normal group, but in addition confusion and unsteadiness of gait were observed. Several complained of fatigue during the administration of the drug. Of this group, eight cases studied by one of us at the Manhattan State Hospital have been reported in greater detail elsewhere.[15]

Of the cases showing improvement, the following is representative:

Case 4 (J. W., alcoholic).—Blood pressure: before, 110/70; greatest variation after, 190/90. One hour after taking the drug the patient felt considerable motor and mental acceleration and stated that he felt "good." There was a marked increase in talkativeness. His hands felt cold and clammy. At the end of two hours he was confused and unsteady on his feet but insisted that he was feeling "very strong." After three hours he was restless, talkative, whistled constantly, appeared very cheerful and for the first time since his admission he asked to go on the porch. He continued to be cheerful and to pace about for the rest of the day. He stated that he never felt better. He improved rapidly and was soon discharged from the hospital.

Of the cases that were adversely affected by the medication, the following are typical:

Case 10 (R. L., paretic).—Blood pressure: before, 160/100; greatest variation after, 160/120. The patient showed no improvement but he became more depressed, less efficient and very sluggish and fatigued. The drug was discontinued prematurely because of the rise in the diastolic blood pressure.

Case 9 (J. O., a cardiac patient).—Blood pressure: before, 170/120; greatest variation after, 110/65. The patient experienced a rapid fall in blood pressure, but was otherwise unaffected.

Effect on the Dementia Praecox Group

The effect of benzedrine was studied on twenty-five self-absorbed dementia praecox patients. Four manifested elevation of mood, seven overtalkativeness, eleven increased motor activity and nine increased general efficiency. Five showed a state of increased irritation. Because of the mental state of the patients it was impossible to evaluate changes in fatigue properly. There was no change in the total personality or in the structure of the psychosis in any of the cases. Three, diagnosed as catatonic, were classified as improved and were paroled. Twenty-two of these cases, studied at the Manhattan State Hospital, have been reported in greater detail in a previous paper.[18]

The following cases are illustrative:

Case 1 (J. G.).—Blood pressure: before, 100/60; greatest variation after, 130/100. The case was of the self-absorbed catatonic group of recent onset. Following the medication the patient began to initiate conversation and later discussed matters freely with the physician. He became a very efficient worker and was much more active. While his affect was still somewhat rigid, he showed an improvement in this phase. He smiled and at times indulged in humorous conversation.

Case 13 (W. T.).—Blood pressure: before, 108/84; greatest variation after, 110/90. The patient seemed in no way affected throughout the entire period of administration.

Myerson [17] referred briefly to eighteen patients suffering from dementia praecox who were treated for a considerable period with this drug. He concluded that benzedrine had no effect in catatonic states and none, as far as could be seen, in hebephrenia.

Effect on the Manic Depressive Group

The effect of benzedrine was studied on ten depressed manic depressive patients. Only two displayed elevation of mood, six overtalkativeness, six increased motor activity and six improved general efficiency. A state of increased irritation was observed in six. Several of the patients complained of fatigue during the administration. There was no change in the total personality or in the structure of the psychosis. The subjective statements were in no way strikingly different from those of the normal group.

Of the cases that improved the following is typical:

Case 2 (N. W.).—Blood pressure: before, 106/62; greatest variation after, 120/80. The patient became talkative within an hour after taking the drug. Three hours later he was "feeling much better" but complained of fatigue. He did not sleep well. The second day he appeared depressed three hours after taking the drug, but from six to eight hours later he stated that he felt "good" and he slept well that night. On the fourth day he remarked that he was very happy, cheerful and alert.

The urinary output was diminished and the bowels were quite constipated. On the sixth day he was jovial. By the tenth day he was singing; he stated that he felt "great" and appeared to have reached approximately his normal state. He was quite active. On the twelfth day he was depressed shortly after taking the drug but toward evening appeared to be in better spirits. On the fourteenth day he was very talkative but complained of depression and a severe headache. Throughout the period he worked more efficiently in the ward. In general his mood appeared less affected than his speech response, motor activity and general efficiency.

The following is an example of the cases in which there was failure to improve:

CASE 8 (J. F.).—Blood pressure: before, 98/62; greatest variation after, 148/85. After taking 30 mg. of the drug the patient evinced no change. At a later date even though a massive dose of 70 mg. was administered, sufficient to raise the systolic blood pressure 50 points, there were no deviations in mood, speech, motor activity or general efficiency.

An alarming untoward effect was noted in one case:

CASE 9 (B. M.).—The patient became more irritated, more antagonistic, and more hopeless in his outlook. He sat at home and brooded. On the fifth night he attempted suicide by taking an overdose of barbiturate sedative and was in coma for some hours.

EFFECT ON THE PSYCHONEUROTIC GROUP

The summary in table 1 on the effects of benzedrine on ten depressed psychoneurotic patients reveals that not one of the cases showed improvement in all spheres. Only three showed elevation of mood, six increased talkativeness and four accelerated motor activity. The fact that only two cases showed improvement in general efficiency is interesting. Five of the cases showed a state of increased irritation. The total personality was unaffected in every case, and the underlying psychoneurotic tendency remained entirely unchanged. Many of the effects were recorded as slight, but one case showed a severe untoward reaction. The subjective statements of the patients followed the pattern of the normal group.

The following is an example of an improved case in this group, although there was a severe untoward reaction before the improvement became evident:

CASE 2 (F. H.).—Blood pressure: before, 108/60; greatest variation after, 138/90. One hour after taking the benzedrine the patient complained of feeling dizzy. Within four hours he became perturbed and agitated. He was unsteady on his feet and appeared to have a marked reaction, during which his eyes became glassy, his face was flushed, he perspired freely, knee jerks became hyperactive and he voluntarily went to bed. Motor activity was much diminished and he fell asleep for about an hour. Later his face was pale, and there was cyanosis of the lips and fingers. The next morning the initial pulse rate of 86 had decreased to 56. At the same time the systolic blood pressure was only 4 points above the original level. Within three hours he complained of fatigue, and the pulse went to 104, while the blood pressure was 126 systolic, 68 diastolic. He again experienced these reactions and voluntarily went to sleep. However, several hours later he felt much better and became very talkative. The next day he complained of "drawing" sensations in the head and eyes and blurred vision. He experienced the same symptoms on the third and fourth days but became more cheerful. The amount and frequency of defecation and urination increased. The fifth day he appeared delirious for a time and complained of "water ebbing up and down his body to his neck." These sensations soon disappeared. The next day he could not remember anything that had happened and was confused. On the seventh day he was improved and became jovial and talkative, although the motor activity increased only slightly, and there appeared to be no change in his general efficiency. Toward the end he was occasionally drowsy. He complained of dizziness, even after the drug was discontinued.

Of the psychoneurotic cases that were unaffected the following is typical:

CASE 9 (H. C.).—Blood pressure: before, 140/85; greatest variation after, 152/98. After the medication there was no change in the patient's status, although she stated that she had "faith in the pills." The next day she was much discouraged because they had "failed to work." Her face was flushed; she ate poorly, felt fatigued and complained, as previously, about the bowels and stomach. The patient insisted that she would "never be able to get around again." Later she became very irritable and tearful at the slightest provocation. She complained of a "drawing" sensation in the head. On the third day she felt a little better than previously, but shortly declared: "the treatment is a fake just like everything else." She was then placed on placebo medication. Several hours later she was feeling much better but soon became depressed and discouraged again and asked if there was any one else in the hospital as sick as she. Her reactions on placebo medication were no different than they had been on benzedrine or, indeed, than they had been in the beginning. This case illustrates the difficulty in evaluating the effect of medication, particularly in the psychoneurotic group of patients.

TABLE 2.—*Effect of Benzedrine Sulfate: Comparison of Self-Absorbed or Depressed Cases with Normal Controls*

		Elevation of Mood				Talkativeness				Motor Activity				General Efficiency			
		Increased		Unchanged		Increased		Unchanged		Increased		Unchanged		Increased		Unchanged	
Type of Case	Number of Cases	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Organic	10	5	50	5	50	7	70	3	30	8	80	2	20	8	80	2	20
Dementia praecox	25	4	16	21	84	7	28	18	72	11	44	14	56	9	36	16	64
Psychoneurotic	10	3	30	7	70	6	60	4	40	4	40	6	60	2	20	8	80
Manic depressive	10	2	20	8	80	6	60	4	40	6	60	4	40	6	60	4	40
Total	55	14	25.5	41	74.5	26	47.3	29	52.7	29	52.7	26	47.3	25	45.5	30	54.5
Normal	10	7	70	3	30	7	70	3	30	10	100	0	0	10	100	0	0

Myerson [17] reported that benzedrine sulfate acted as an ameliorative influence in certain cases of neurosis associated with depression, fatigue and anhedonia. He pointed out that it was not in any sense curative, and its effects were not permanent, but stated that it helped to dissipate the morning apathy and depression. Nathanson [18] asserted that the drug acted favorably in persons with a persistent tired feeling and a ready fatigability, whom he included under the diagnosis of "nervous exhaustion."

COMPARISON OF THE NORMAL AND THE ABNORMAL GROUPS

Table 2, containing a summary of the reactions of the various groups to benzedrine sulfate medication, indicates that the normal group had the largest percentage of response in every sphere. The organic group was next and surpassed every other division of the abnormal groups in each of the reaction phases. The scattering of the reactions, the lack of consistency and the indifferent response in efficiency in the psychoneurotic group is also worthy of comment. The table shows that elevation of the mood was the least marked reaction in every one of the groups, including the normal.

COMMENT

It is difficult to state whether the manifestations observed following the administration of benzedrine sulfate were due to the action of the drug itself, to the variable course of the mental illness in question or to the psychotherapeutic effort entailed in the procedure. As far as possible, consideration must be given this source of error in the interpretation of the results. More extensive investigation is necessary before final conclusions can be reached.

A discussion of the effects noted follows:

1. *Mood.*—Of all the reactions tabulated, elevation of mood was the least frequent occurrence as far as the abnormal cases were concerned. This alteration occurred in fourteen of these cases, or 25.5 per cent. It is interesting to note, however, that 70 per cent of the normal group showed this reaction. In interpreting these responses it must be emphasized that increased motor or increased speech activity does not necessarily imply elevation of the mood. The only other significant variation of the mood was a state of disgruntled irritation, which appeared in twenty-four of the cases, including five of the normal group. Depression was produced or aggravated in some individuals, particularly those who complained of excessive fatigue. Elevation of mood occurred, in general, most frequently in the normal and in the organic groups.

2. *Talkativeness.*—This reaction was present more frequently than elevation of mood but less often than increased motor activity in the abnormal groups. Loquaciousness was observed in at least 60 per cent of the abnormal cases, with the exception of the dementia praecox group, in which only 28 per cent were affected. Seventy per cent of the normal group manifested increased speech activity. None of the patients evinced a decreased desire to talk.

3. *Motor Activity.*—Hyperactivity was the most frequent reaction noted in the abnormal cases. All of the normal group and 80 per cent of the organic cases showed increased motor activity, while the dementia praecox and the psychoneurotic groups were considerably less affected. Decreased motor activity was observed in some, particularly in those who complained of fatigue and who were more depressed, drowsy and sleepy.

4. *General Efficiency.*—As far as the abnormal groups were concerned improvement in general efficiency approximated increased talkativeness in frequency of occurrence. The normal and the organic cases again presented the most constant response. All the normal cases and 80 per cent of the organic improved. The lack of improvement in the psychoneurotic group is in striking contrast to the normal.

5. *Comparison of Groups.*—In general, the most marked response in all the various phases studied was found in the normal group. The organic cases, particularly the alcoholic and the post-traumatic, closely paralleled the normal.

6. *Structure of Psychosis (or Neurosis) and Total Personality.*—None of the abnormal cases showed any noteworthy alteration in the structure of the psychosis; nor was the central neurotic tendency or the total personality reaction modified by the benzedrine therapy.

7. *Fatigue.*—Many of the patients who responded to the drug noticed amelioration of fatigue, and this was particularly true of those who were feeling tired prior to the administration of the benzedrine. Myerson [17] and Nathanson [18] report similar responses in fatigued individuals. A number of our patients, however, who did not have this complaint prior to medication noticed sensations of fatigue from three to six hours after taking the drug. Another group showed, for one or two days, a fatigue on awakening that appeared rather consistently about four or five days after the benzedrine was started. After the medication had been entirely discontinued, several of the patients complained for a day or two of lassitude. It must be borne in mind, therefore, that benzedrine, instead of relieving the malaise for which it is prescribed, occasionally may induce additional fatigue.

8. *Other Central Effects.*—In addition to the alterations in mood, speech and motor activity, general efficiency and states of fatigue mentioned before, benzedrine sulfate also produced other effects on the central nervous system. Among these should be included insomnia and decrease of sleep requirement, alertness, increase in accessibility, increase in subjective verbalization and willingness to discuss personal problems, increase in meticulousness, resentfulness, impulsiveness, impatience, anxiety, surliness, increase in self assertiveness approaching aggressiveness in some, facetiousness, increase in spontaneity, agitation, drowsiness, inability to concentrate, dulness, forgetfulness, confusion and transitory delirium, tactile hallucinations, malaise, dizziness and an increase in drive or urge. A very commonly occurring manifestation was an irritable restlessness, which was often annoying.

9. *Peripheral Effects.*—Most of the cases showed some peripheral effects. Among them should be mentioned flushing of the face, urticaria and pustular eruption of the skin, generalized sensation of warmth, sweating, coldness and clamminess of the hands, greasiness of the skin, sensations of constriction, fulness or aching of the head, increase or decrease of the nasal secretion, injection of the conjunctivae, dilatation of the pupil, parching of the mouth and throat, peculiar taste, anorexia, nausea, loss of weight, abdominal cramps, frequency of bowel and bladder function, constipation, decrease in urinary output, throbbing pulse, consciousness of heart action, tension of the muscles and generalized tremulousness, burning of the feet, and other vasomotor effects such as dermatographia, pallor and cyanosis.

10. *Physiologic Reactions.*—Physiologic reactions in some of the cases have been carefully studied and will be reported in detail in another paper. The results were variable, uncertain, unpredictable, and at times paradoxical. As Rothlin [19] has pointed out, this might be explained by the fact that disturbances in the vegetative nervous system almost invariably involve parasympathetic as well as sympathetic stimulation. The observations on the physiologic action of benzedrine sulfate are summarized briefly as follows:

A. Skin, Mucous Membrane and Vasomotor System: most of the reactions mentioned under the peripheral effects.

B. Bowel and Bladder Function: increase in frequency of bowel action; increase in amount of stool; constipation; abdominal cramps; increase in frequency of bladder action; increase or decrease in daily urinary output.

C. Body Weight: decrease in most subjects.

D. Blood Pressure and Pulse: increase or decrease in systolic and diastolic blood pressure levels; increase or decrease in pulse rate.

E. Respiration: apparently unaffected.

19. Rothlin, cited by Jores, A., and Goyert, C.: The Treatment of Vegetative Excitation, Clin. Med. & Surg. 43:498, 1936.

F. Temperature: slight increase or decrease.

G. Basal Metabolic Rate: increase or decrease, no consistent variation.

H. Blood Sugar and Nonprotein Nitrogen: apparently unaffected.

I. Knee Jerks: occasional increase.

J. Cellular Elements of the Blood: no striking variation, except for a moderate increase in one case.

Our observations to date seem to be in accord with the statement of Sollmann [20] on the variable effects of the other sympathomime drugs on urinary output. We have not found that the alterations in the blood pressure can be used as an index of the course and intensity of intoxication with benzedrine, as mentioned by Peoples and Guttmann.[16] The striking erythrocytosis and leukocytosis noted in some cases by Myerson and his associates [12] have not been observed, although one case showed a moderate increase. As far as the intensity of all reactions could be evaluated, the asthenic individuals appeared to be more sensitive to benzedrine than the pyknic types.

11. *Untoward Effects.*—A number of the reactions to benzedrine must be classified as untoward, either because they involved unpleasant subjective sensations or else because they rendered the patient objectively less adaptable. Such reactions were observed in the central, peripheral and physiologic spheres and have been mentioned before under those headings. Subjectively, the following central effects were particularly annoying: a feeling of undue fatigue or malaise, insomnia, dizziness, increase in depression and hopelessness, a feeling of anxiety and a disturbing sensation of restlessness or tension. Some of the patients could not define their feelings satisfactorily yet feared the drug because of the uncomfortable sensations and even refused to continue taking it. Objectively, impulsiveness, aggressiveness, and assaultiveness, inability to concentrate, dulness and forgetfulness, confusion and transitory delirium proved therapeutic obstacles. This was especially true when several of these manifestations occurred in combination, as in the frequent appearance of a state of irritated restlessness. In a few cases of dementia praecox, usually with a history of previous catatonic excitement, the occurrence of overactivity, impulsiveness, surliness and boisterousness made the patients more difficult to manage. One of the manic depressive patients became more depressed and impulsively attempted suicide. In a psychoneurotic patient transitory delirium developed with hallucinations. A dementia praecox patient made a homicidal attempt on his wife shortly after the termination of the benzedrine medication, but the causal relationship is not definitely established.

Patients also expressed annoyance at some of the peripheral effects, which have been listed in detail under that heading. However, except for tremulousness, none of them interfered to any degree with the management of the patients. There were a number of untoward occurrences associated with the physiologic reactions. The vexation of patients at changes in the skin, mucous membranes, vasomotor system and bowel function has already been mentioned. The loss of weight was a source of concern to a few. Objectively the appearance of an excessive elevation or a paradoxical fall in the blood pressure or in the pulse rate was viewed with considerable apprehension, particularly when vasomotor phenomena were present and in several instances necessitated the discontinuance of the benzedrine. One of the psychoneurotic patients had recurring episodes of vasomotor and emotional instability, which were severe and at first rather alarming. Another patient with marked vasomotor instability exhibited a rise of the systolic blood pressure of over 100 points following the ingestion of 20 mg. of benzedrine sulfate.

The action of benzedrine can usually be terminated by appropriate doses of barbiturates. The use of ergotamine tartrate, recently shown to be generally antagonistic to epinephrine,[21] should be borne in mind, and this drug should be investigated as a possible antagonist to benzedrine sulfate.

Untoward reactions have been reported by other investigators. Prinzmetal and Bloomberg [13] noted insomnia in several of the cases of narcolepsy but found this easily corrected by adjusting the dosage. They also reported patients becoming irritable and irascible when the dosage was carried too high. Myerson [17] mentioned two cases in which the drug had to be discontinued because of the appearance of noisy, threatening and uncontrollable behavior. Nathanson [15] had to discontinue the drug in three patients, two because of insomnia and one because of severe palpitation.

In view of these untoward and disturbing reactions, it must be pointed out that benzedrine sulfate can be more safely prescribed when the patient is under close observation in a hospital. Its use in outpatient practice should be undertaken with considerable caution and only under favorable circumstances.

12. *Habit Formation.*—Most of the patients affected by the drug who experienced few or none of the untoward effects seemed to enjoy the sensations produced, and several requested more medication when the period of study was ended. One compared the sensation to that of a mild state of alcoholic intoxication, and those who had a liking for spirituous liquors particularly relished the drug. Without further study the question of habit formation cannot be satisfactorily answered, but it would seem that there is sufficient evidence to warn against promiscuous use. As none of the patients mentioned in the present report received the drug for more than a few weeks, no observations could be made on the possibility of addiction, development of tolerance or late untoward effects from prolonged use. In this connection, however, Prinzmetal and Bloomberg [13] have given the medication daily for fourteen months, Myerson [17] for six months and Nathanson [15] for four months without incident. The last named suggested a possible harmful effect in prolonged administration from the excessive expenditure of energy beyond the capacity of some individuals.

13. *Dosage.*—In view of the disturbing nature of some of the untoward reactions, it is always advisable to start administering benzedrine in small doses, as Prinzmetal and Bloomberg [13] have suggested. This will also aid in detecting any idiosyncrasy. Most of our patients received from 10 to 30 mg. of the drug daily. Some of the unresponsive patients appeared equally unaffected with doses of from 20 to 70 mg. Prinzmetal and Bloomberg [13] gave narcoleptic patients as much as 105 mg. daily with only moderately unpleasant reactions. One patient in our series received 200 mg. in one day without exhibiting a much greater reaction than could be obtained with 20 mg. The reactions appeared from one to three hours after the administra-

20. Sollmann, Torald: A Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1936, pp. 403-432.

21. Baber, E. A., and Tietz, Esther B.: The Effect of Ergotamine Tartrate on the Behavior of Psychotic Patients, J. Med. 17: 551 (Jan.) 1937.

tion of the drug and persisted from three to eight or nine hours. It was found possible in one patient to maintain the reaction at its height for twelve hours by repeating 20 mg. of benzedrine every two hours. Our observations gave insufficient data to warrant a discussion of the problems of optimal dosage, cumulative effect and increased tolerance; however, many of our patients experienced a maximal effect within one week.

14. *Contraindications.*—It is agreed by all investigators that the presence of the following are definite contraindications to the administration of benzedrine sulfate: (*a*) hypertension, (*b*) coronary artery disease and (*c*) a state of manic excitement. It has been our observation that this drug should not be used in most forms of cardiac and vascular disease.

In addition to these definite contraindications there are a number of circumstances under which benzedrine should be administered with considerable caution, because of possible harmful effects. We include among these (*a*) idiosyncrasy to small doses of the drug, or the early appearance of alarming untoward effects; (*b*) more severe forms of vasomotor instability, (*c*) wide daily fluctuations in the blood pressure or in the pulse rate, (*d*) tendency to physical overactivity, as observed in the agitated depressions; (*e*) history of previous excitement, as in catatonic dementia praecox, epilepsy and mental deficiency; (*f*) history of homicidal or suicidal tendencies; (*g*) history of convulsive seizures; (*h*) anorexia; (*i*) insomnia, and (*j*) malnutrition and states of exhaustion, debility and lowered bodily resistance. The apparent increased sensitivity of asthenic individuals should be considered. In severe depressions the possibility of suicide must always be kept in mind. Habituation to the drug cannot as yet be entirely dismissed.

15. *Indications.* — Benzedrine has been widely accepted as a local astringent.[22] As an internal medication it has been best established in the treatment of narcolepsy.[23] It has also been suggested in overcoming persistent states of fatigue and "nervous exhaustion";[24] in postencephalitic parkinsonism;[25] in conditions in which it is desirable to produce an elevation of the blood pressure;[12] in relieving gastro-intestinal spasm;[11] in combating overdoses of barbiturates;[12] in preparing individuals for periods of excessive physical or mental exertion;[15] as an adjuvant to the action of atropine, stramonium and scopolamine [26] and in relieving attacks of migraine.[15] These suggestions need further substantiation.

SUMMARY

As we have previously mentioned, more extensive investigation of the action of benzedrine sulfate is necessary before final conclusions can be reached. However, our experience, limited as it has been to the sixty-five cases presented in this communication, prompts us to suggest the following:

A. Benzedrine sulfate is apparently more stimulating to normal persons than to depressed or self-absorbed patients.

B. It is more effective in increasing the motor activity, the speech activity and the general efficiency than in elevating the mood.

C. It is of more value in the organic depressions, particularly the alcoholic, than in those of psychogenic origin.

D. It may be of value in differentiating the states of depression due to alcohol alone, which are usually rapidly dissipated by the drug, from the states of alcoholic depression superimposed on and masking depressions of psychogenic origin, which do not respond readily to the drug.

E. It may render depressed or self-absorbed patients more accessible to investigation or psychotherapy.

F. It may be of use in reducing weight.

G. The beneficial effects of benzedrine sulfate therapy may be counterbalanced by untoward reactions occurring in the course of the administration. This drug should be employed with caution and under favorable circumstances.

H. Are there any benefits to be gained from prolonged administration of benzedrine sulfate that cannot be obtained from a brief exhibition with adequate dosage?

I. Benzedrine sulfate apparently may accelerate the rate of improvement in cases in which ultimate recovery is likely to be the inevitable result.

708 Irving Avenue.

22. Bertolet,[7] Byrne,[8] Scarano,[9] Wood.[10]
23. Prinzmetal and Bloomberg.[27] Ulrich, Trapp and Vigdoff.[28]
24. Myerson.[29] Nathanson.[30]
25. Solomon, P., and Prinzmetal, Myron: The Use of Benzedrine in Postencephalitic Parkinsonism, Boston Soc. Psychiat. & Neurol., March 1936.
26. Myerson, Loman and Dameshek.[31] Davidoff.[32]

ADENOCARCINOMA OF THE RECTUM WITH UNUSUAL SITES OF METASTASES

REPORT OF TWO CASES

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AND
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HINES, ILL.

Adenocarcinoma of the rectum seldom metastasizes or invades the penis by direct extension. A careful review of the literature has revealed only two similar cases. In 1933 Niewiesch [1] reported a case of adenocarcinoma of the rectum in a man aged 69. One and one-half years following resection of the rectum he returned because of priapism. No recurrence was found in the resected area, but the corpora cavernosa were rigid as the result of invasion by tumor tissue. Amputation of the penis was done, but the patient died ten months later from metastases.

Matheson [2] in 1935 reported a case of adenocarcinoma of the rectum in a man, aged 72, with secondary carcinomatous deposits in the penis. The lesions were nodular and located on the dorsal surface of the penis. One month after his admission the deposits compressed the urethra, causing complete repression of urine. Necropsy and sections reviewed for histologic study confirmed the diagnosis of an adenocarcinoma of the penis having the same histologic structure as the rectal lesion. Priapism was not mentioned.

The case to be reported (case 1) is the sixteenth recorded in the literature of secondary involvement of

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Published with the permission of the Medical Director of the Veterans Administration, who assumes no responsibility for the opinions expressed or the conclusion drawn by the writers.

1. Niewiesch, H.: Priapismus bei primären und metastatischen Geschwülsten in den Schwellkörpern des Penis, Deutsche Ztschr. f. Chir. **241**: 94-103, 1933.
2. Matheson, N. M.: Secondary Carcinomatous Deposits in Body of Penis: Retention of Urine, Urol. & Cutan. Rev. **39**: 566-567 (Aug.) 1935.

the penis by carcinomatous tissue. Frontz and Alyea,[3] Cowie,[4] Paglieri and Schiappapietra,[5] Guibal[6] and Martin-Laval[7] reported cases with the prostate as the primary site; Kessell,[8] Neumann[4] and Paschkis[9] the bladder; Bergeret[4] and Garofalo[10] the testicle; Gadrat[11] the liver and Begg[12] and Reinicke[4] the kidney. As previously mentioned, in the cases reported by Niewiesch[1] and Matheson[2] the rectum was the primary site. Four of the cases reviewed by Niewiesch[1] gave a very definite history of priapism. Priapism was present in the cases reported by Kessell[8] and Niewiesch.[1]

When priapism is seen, it is well to keep in mind the possibility of its being caused by metastasis or that it is the result of invasion from tumors situated in neighboring structures. The priapism may be present before one has evidence of the location of the primary lesion.

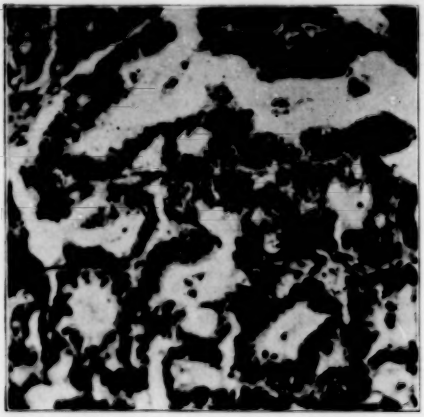

Fig. 1 (case 1).—Section of biopsy from rectum showing typical adenocarcinomatous structure.

The priapism is not caused entirely by the replacement of the corpus cavernosum by tumor tissue but also by the stasis and thrombosis of the sinuses in the corpus cavernosum not directly involved in the tumor process. There is no mention in the literature of a case in which secondary carcinomatous involvement of the corpus spongiosum urethrae has occurred.

It is remarkable that metastases or direct extension of tumor cells does not occur more often to the penis from the rectal region because of the close proximity to that structure. The region between the rectum and the penis is devoid of all lymphatics that may drain the rectum anteriorly to the penis, as far as is known at the present time. Anatomically or physiologically,

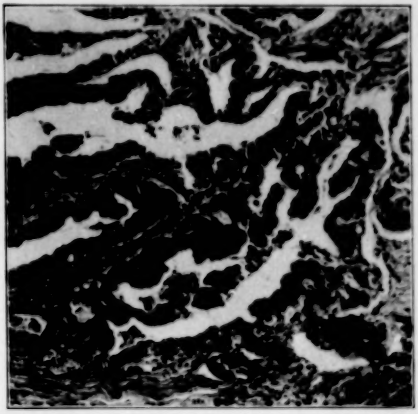

Fig. 2 (case 1.)—Section of biopsy from the penis showing identical structure as rectal lesion.

metastases from the rectum to the penis cannot be explained on a vascular or lymphatic basis. The only logical explanation is that the secondary involvement resulted from direct extension into the corpus cavernosum by way of the ischiorectal fossa and then through the junction of the deep and superficial triangular

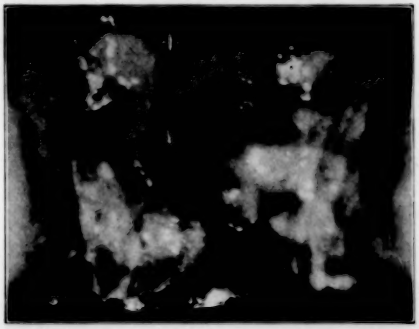

Fig. 3 (case 1).—Lesion in rectum as seen from within the rectum. Almost complete obstruction has taken place.

ligaments with the fascia of Colles into the superficial perineal space. This is the course of least resistance, and the cells do not spread against fascial planes. It is considered unlikely that it passed through the urogenital diaphragm, for in this region such extension would be against fascial planes. The fascia of the urogenital diaphragm is thin, however, and could be involved. In

3. Frontz, W. A., and Alyea, E. P.: Priapism of Unusual Etiology, J. Urol. **20**: 135-141 (July) 1928.
4. Cited by Niewiesch,[1] p. 102.
5. Paglieri, L., and Schiappapietra, T.: Adenocarcinoma de la próstata con metasis en cuerpos cavernosos, Rev. de especialid. **2**: 774-781 (Nov.) 1928.
6. Guibal, P.: Deux cas de métastase cancéreuse rapide et massive dans l'appareil génital érectile d'un homme et d'une femme après curiethérapie, Bull. et mém. soc. nat. de chir. **55**: 665-672 (May 18) 1929.
7. Martin-Laval: Cancer des corps caverneaux, secondaire à un cancer de la prostate, J. d'urol. **32**: 347-348, 1931.
8. Kessell, J. S.: An Interesting Case of Priapism Due to Multiple Secondary Carcinomatous Nodules in the Corpora Cavernosa, J. Urol. **22**: 213-216 (Aug.) 1934.
9. Paschkis, R.: Papillary Carcinoma of the Bladder with Metastases to the Penis Corpus Cavernosum, Ztschr. f. urol. Chir. **26**: 154, 1929.
10. Garofalo, F.: Priapismo da tumore metastatico dei corpi cavernosi del pene, Arch. ital. di dermat., sif. **7**: 20-32 (June) 1931.
11. Gadrat, J.: Faux priapisme déterminé par une métastase caverneuse d'un cancer primitif du foie, Ann. de dermat. et syph. **1**: 621-624 (June) 1930.
12. Begg, R. C.: Persistent Priapism Due to Secondary Carcinoma in Corpora Cavernosa, Brit. M. J. **2**: 10 (July 7) 1928.

the event that the corpus spongiosum is involved, the extension would probably have to take place through the urogenital diaphragm.

REPORT OF CASES

CASE 1.—*History.*—A white man, aged 62, a farmer, was admitted to the Edward Hines Jr. Hospital, Jan. 29, 1936, stating that about fourteen months previous to admission he began to have frequent attacks of diarrhea consisting largely of blood and mucus. Shortly after the onset of the diarrhea he was examined by a private physician and was told that the rectum was essentially normal. Shortly afterward he began

Fig. 4 (case 1).—Several small nodules can be seen on the glans penis. Healed area on the dorsum represents the site from which biopsy was taken.

to have cramping pains in the perineal region. The stools had decreased in size until they were about the breadth of a pencil. Two months before his admission he first noticed several small hard nodules that appeared along the shaft of the penis. Since that time new nodules had appeared and the original nodules had increased in size. At times he had a dull aching type of pain associated with the penile lesions. During the past year he had lost 40 pounds (18 Kg.) and had become quite weak.

The patient had had the usual childhood diseases and no operations. His general health had always been good until the onset of the present illness. He fell and injured his back in 1926 but he had fully recovered from this at the time of examination.

The family history was irrelevant. There was no history of cancer, diabetes, tuberculosis or cardiac disease.

The patient had always been a farmer. He used alcohol and tobacco in moderation. He stated that he had had neither syphilis nor gonorrhea.

Physical Examination.—The patient was poorly nourished but fairly well developed. He was lying in bed and appeared markedly anemic and in a weakened state. The eyes, ears and nose were normal. The teeth were in fairly good condition. The tongue was coated. The tonsils and pharynx were normal. There were no abnormal pulsations in the neck and there was no cervical adenopathy. The thyroid gland was not remarkable. The trachea was in the midline. The heart and lungs were normal on clinical examination. The blood pressure was 100 systolic, 70 diastolic; the pulse 90; the temperature 98.6 F. There were no palpable masses, fluid, rigidity or tenderness in the abdomen and no scars. The spleen and liver were not palpable. No evidence of hernia was noted. There was no supraclavicular, infraclavicular, axillary, epitrochlear or inguinal adenopathy. The extremities were normal. Proctoscopic examination revealed an intrarectal mass starting at a point 6 cm. above the anus and extending to a distance 11 cm. above the anus. The mass circumscribed the bowel and was ulcerated in areas, especially the left half. The mass was firmly fixed anteriorly. There were several hard nodules located along the shaft of the penis and on the glans penis. The nodules varied in size from about 1 cm. to 2 cm. in diameter.

X-ray examination of the chest revealed an old inflammatory process, most probably the result of tuberculosis (inactive). Urinalysis was negative. The Wassermann and Kahn reactions were negative. Red blood cells numbered 3,560,000, leukocytes 11,600 with 86 per cent polymorphonuclears, and hemoglobin was 55 per cent. Fluoroscopy with a barium sulfate enema revealed a large filling defect in the region of the rectal ampulla extending for a distance of about 10 cm. to the rectosigmoid region. Roentgenograms of the bones of the dorsolumbar spines, hips and sacro-iliac joints revealed evidence of an inflammatory process involving these structures. Calcification was present in the abdominal aorta.

The diagnosis of a biopsy specimen removed from the rectum was adenocarcinoma. Tissue removed from a nodule in the corpus cavernosum revealed an adenocarcinoma arising from the rectal mucosa.

Course in Hospital.—It was considered advisable for the patient to have a colostomy because of the very narrow lumen. The patient, however, refused. He was given a course of high voltage roentgen therapy resulting in practically no change in his condition. During the last few days of his illness the patient complained of priapism caused by the nodules of tumor tissue in the corpora cavernosa. He died April 16. All efforts to obtain a necropsy were futile.

There is no record of any case in the literature presenting metastasis to the bones of the foot from a rectal carcinoma. In case 2 the tumor in the foot appeared several months before there was any demonstrable evidence, clinical or laboratory, of involvement in other parts of the body. The metastasis is most likely to have taken place through the blood stream. Martin,[13] Buie,[13] Broders [13] and Kernohan [13] have never encountered a case similar to either of the ones reported in this paper.

CASE 2.—*History.*—A white man, aged 38, a laborer, was admitted to the Edward Hines Jr. Hospital May 1, 1935.

The father had died of heart disease. The mother, three brothers and three sisters were living and well. There was no history of tuberculosis, cancer, diabetes or insanity in the family.

The patient had had the usual childhood diseases. He stated that he had had no venereal diseases. There was no history of alcoholism or drug addiction.

The patient stated that he had experienced difficulty in keeping the bowels regulated for the past ten or twelve years. Two

Fig. 5 (case 2).—Appearance of foot representing the metastasis to bones of the foot from the rectal lesion.

years previous to admission he consulted a physician, who made a diagnosis of carcinoma of the rectum following examination with roentgenograms. Operation was advised but refused. At that time a partial obstruction was present and the stools were pencil-like in character and contained blood on several occasions. One year after the diagnosis of carcinoma of the rectum was made the patient was admitted to the Mercy Hospital. A proctoscopic examination of the rectum revealed a constricting ulcerated mass 10 cm. above the anus. Following biopsy a

13. Personal communication to the authors.

diagnosis of adenocarcinoma of the rectum was made. Roentgenograms of the pelvis and chest were negative. There was a swelling of the dorsum of the right foot first noted in February 1935.

Roentgenograms of the right foot revealed a destructive process in the head of the second metatarsal and second cuneiform with beginning obliteration of the cuneometatarsal joint and fusion of the navicular, cuboid and third cuneiform.

The patient was operated on by Dr. Lester E. Garrison at the Mercy Hospital, March 2, 1935. An inoperable carcinoma of the rectum involving the pelvic wall and glands along the iliacs

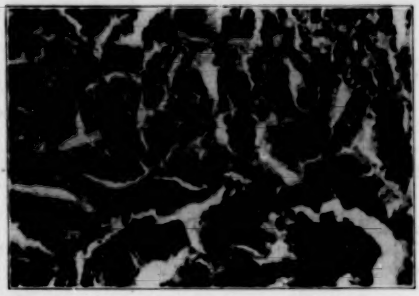

Fig. 6 (case 2).—Section of biopsy from bones of foot revealing a typical adenocarcinoma which is identical with the biopsy from the rectal lesion.

and aorta was found. A colostomy was performed. The right foot was explored and all degenerated bone tissue curetted. Pathologic diagnosis was metastatic papillary adenocarcinoma of the right foot with the primary lesion probably in the intestine. Roentgenograms of the pelvis including the upper third of both femurs made April 30 revealed an area of rarefaction involving the neck of the right femur.

A course of high voltage roentgen therapy was given by Dr. Henry Schmitz. Sixteen treatments were given through two portals over the rectal area and five treatments to the right foot. This was done as a palliative measure. Factors of treatment were as follows: 800 kilovolts, 10 milliamperes, 5 mm. of copper filter and 250 roentgen units each treatment. Following the completion of the roentgen therapy the patient was transferred from the Mercy Hospital to Edward Hines Jr. Hospital, May 1.

Examination.—On admission the patient appeared emaciated and chronically ill. The right leg and foot were in a plaster cast. Examination of the eyes, ears, nose and throat gave negative results. There was no adenopathy in the neck. The blood pressure was 132 systolic, 76 diastolic. The heart rate was 120. There were no murmurs. The lungs were normal. There were no palpable masses in the abdomen or nodes in the groin. The scar of the previous operation had healed. The colostomy was in good condition. Examination through a window in the cast revealed two cavities about 1.5 cm. in diameter extending downward for a depth of 2 cm. on the dorsum of the right foot. Considerable swelling and purulent drainage were present.

Urinalysis was negative. The Wassermann and Kahn reactions were negative. The blood count revealed: red blood corpuscles 4,200,000, leukocytes 7,200, hemoglobin 80 per cent. Roentgenograms of the right femur confirmed the condition as given at Mercy Hospital. Rectal changes were similar to those reported at Mercy Hospital. Roentgenograms of the chest, pelvis and lower lumbar vertebrae revealed no evidence of metastasis.

Biopsy of the right foot revealed an adenocarcinoma, metastatic in origin.

Course in Hospital.—The patient became progressively worse. Shortly before his death, nodules could be palpated in the liver. Also fluid appeared in the abdomen. He died July 6.

Necropsy revealed adenocarcinoma of the rectum with extension to the pelvis and metastases to the lungs, pleura, liver, lymph nodes, right leg and right foot.

THE RADIOACTIVITY OF THORIUM DIOXIDE SOL

A PRELIMINARY REPORT

ROBERT B. TAFT, M.D.
CHARLESTON, S. C.

The use of stabilized thorium dioxide sol (thorotrast) for roentgen visualization of the liver and spleen has become a well established clinical procedure, but the question of its radioactivity and the resultant effect on the reticulo-endothelial system is far from settled. The manufacturer places a warning in each box stating that the matter should be seriously considered.

Many observers have asserted that the radioactivity of this preparation is negligible as it causes no fogging of a film in many hours' time, but this is far too crude a method of detecting small quantities of radiation.

The Geiger counter,[1] when brought in the vicinity of a sample of thorium dioxide sol, showed such violent and immediate response that I at once realized that I had a means of making observations of comparatively high accuracy. Though the instrument described is capable of making only gamma ray tests, it is substantial and rugged as well as free from disturbances of moisture.

These experiments may be divided into the following steps:

1. Comparison of the gamma ray output of a clinical dose of thorium dioxide sol with a suitable radium standard.

2. The determination of the radioactivity of a phantom liver containing the entire clinical dose of thorium dioxide sol, to establish a basis from which to make percentage comparisons.

3. Tests made on the living patient who has been injected with thorium dioxide sol.

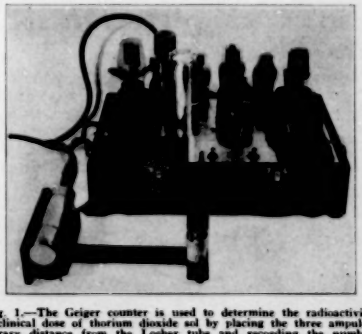

Fig. 1.—The Geiger counter is used to determine the radioactivity of one clinical dose of thorium dioxide sol by placing the three ampules an arbitrary distance from the Locher tube and recording the number of impulses over a long period of time. The "jig" is used to fix the exact distance each time.

4. Tests on the liver of a patient, removed after death.

5. Tests on the ash of liver.

1. The Geiger counter is set up and, with all possible source of radioactive material removed from the vicinity, counts are made over long periods of time to establish the number of impulses per minute which are being

1. Taft, R. B.: Technical Data Concerning the Geiger Counter, Radiology 26: 756-757 (June) 1936.

recorded from the cosmic radiation and any other sources. This is subsequently referred to as "base rate." A sample of radium salt containing 3 micrograms of radium element is placed about 8 inches from the counter (fig. 2) and again counts are taken over long periods of time (thirty minutes or more) to establish the number of impulses per minute. This number

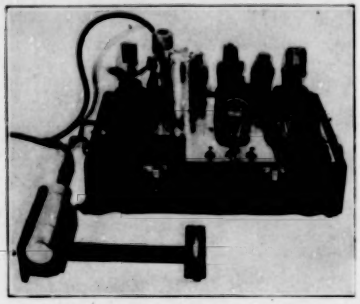

Fig. 2.—A tube containing a small amount of radium salt is substituted for the thorium dioxide sol and the impulses again are recorded.

is corrected for error by subtracting the "base rate" from it. The radium sample is then removed and the three ampules of thorium dioxide sol (a total of 75 cc.) are placed in exactly the location formerly occupied by the radium (fig. 1) and the rate per minute is again counted. These two figures when corrected for base rate error will be in the same proportion as the radioactivity of the specimens. A typical test:

Average counts from 3 micrograms of radium 56.7
Average counts from clinical dose of thorium dioxide sol (total of 75 cc.) 25.7
$56.7 : 25.7 = 3 : x$
Where x is equivalent amount of gamma ray from thorium dioxide sol,
$x = 1.36$ micrograms of radium

These counts are, of course, repeated many times with different distances and with filtration as great as three-eighths inch (0.32 cm.) of lead, which would show that only gamma rays are entering the chamber.

2. The "phantom liver" is prepared from wax and molded on an average normal liver. After the wax has

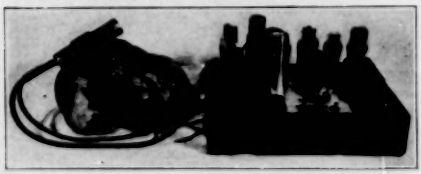

Fig. 3.—The phantom liver is used as a basis for making percentage calculations of the radioactivity of the human liver in the living patient.

hardened it is cut in two, the liver is removed and the halves of the mold are sealed together, leaving a hollow cast the interior of which is the same size and shape as the original liver. A small hole is drilled in the cast and it is filled with a mixture of water and one clinical dose of thorium dioxide sol (75 cc.). This is to serve as a standard of radioactivity from which to make percentage calculations when tests are run on the liver of a living patient. The wall of the phantom is made as nearly as possible the thickness of the human flesh covering the liver. With the counting chamber fastened against the phantom (fig. 3) counts are made over long periods of time. The average number of impulses was found to be 52.8 per minute.

3. Several days after the patient had received the clinical dose of thorium dioxide sol (75 cc.) and roentgen examination showed good delineation of the liver and spleen, tests were made by placing the counting chamber on the body at the point estimated to be the nearest to the liver (fig. 4). Counts on different dates showed that the amount of thorium in the spleen was increasing. The counts were then compared to those on the phantom. Averages were as follows:

Case 1.—Injections were given March 24, 27, 28, 1936.
Average counts March 29, 7.1, or 13.5% of total dose in liver.
Average counts April 2, 9.1, or 17.3% of total dose in liver.
Average counts April 28, 12.3, or 23.3% of total dose in liver.
Death occurred May 4.

Another patient, still living, showed activity of 32.4 per cent in the liver thirty-seven days after injection. It is of interest that a fairly high count was obtained over the spleen and small though definite counts were obtained over the skeleton, but no attempt was made to calculate these.

Fig. 4.—The tube is placed against the liver of the patient and the percentage of the total dose in the liver is determined by comparison with counts on the phantom.

It is to be noted that these figures are somewhat in disagreement with the final tests on the liver at autopsy and, as they cannot be repeated on the same patient, it will not be until after this presentation that the sources of error can be determined, as a number of cases will have to be worked out.

4. The liver was removed after death and, as the body had already been embalmed, the embalming fluid was tested for radioactivity and found nonactive. The counting chamber was placed near the liver but spaced with a rubber bag (fig. 5) partly filled with water in an effort to get the same spacing as the human flesh would give. The average of the counts on the liver was 24.5 per minute. This number, when compared with the numbers obtained from the phantom, showed that the liver contained 46.5 per cent of the total clinical dose of thorium dioxide sol (75 cc.).

5. As another check on the total amount of radioactive material in the liver, it was reduced to ash in order that it might be put in a small container. After the liver was chopped in small pieces it was run through a meat grinder and placed in a large evaporating dish. This was placed on a bath of boiling water for twenty-four hours to remove most of the moisture and for-

maldehyde. The material was then burned for several hours at a temperature of 450 C. The resulting ash was a powder that could be placed in a large test tube. This material was then compared with the three ampules of thorium dioxide sol and was found to contain 51 per cent of the original dose. It is seen that this compares very favorably with the result of method 4.

Fig. 5.—The liver removed at autopsy, after being hardened, is subjected to counting with the water bottle acting as spacing equivalent to the flesh. Afterward the liver is burned to ash and the radioactivity determined as in figure 1.

Conclusions drawn from these tests show that a clinical dose of thorium dioxide sol (75 cc.) gives the gamma ray activity equivalent to approximately 1.37 micrograms of radium and that little of this is excreted, the greatest part being stored in the liver and spleen, with some in the skeleton. Considering the effects of radioactive substances in the body, we naturally turn to the literature of accidental poisonings in industry which was so thoroughly written by many workers, particularly Dr. H. S. Martland. The argument can be justly advanced that in all these cases the amount of material was much greater than the amounts used for diagnostic purposes, but in most instances they were ingested and a high percentage excreted, whereas those injected intravenously are practically all retained. Martland [2] states that:

> Biologically, the alpha rays are more destructive than either beta or gamma rays, the relations being 10,000 to 100 to 1. Therefore, radioactive elements in such small quantities that the beta and gamma radiations are almost negligible still produce, through their alpha radiations, intense physiologic effects, if given by mouth or vein.
>
> In addition, the preponderance of mesothorium in luminous paint is of great toxicologic importance since the mesothorium in equilibrium with its radiothorium emits five alpha particles, whereas radium emits only four; also, the alpha particles of mesothorium and the products of its decay have greater velocity and penetration than those of radium, and, therefore, are, chemophysically and physiologically, more active.

The smallest amount of material determined in a complete autopsy was 14 micrograms,[3] and that from the body of a physicist who died of radium poisoning. Attention is called to the fact that, in living patients suffering from severe radium poisoning, as little as 2 micrograms has been found to be present in the entire body,[2] which is not much above the amount noted in my experiments. My opinion is that the injection of thorium dioxide sol in doses of 75 cc. is a dangerous procedure, as the long continued bombardment of the reticuloendothelial system by radioactivity will cause undesirable changes.

2. Martland, H. S.: The Occurrence of Malignancy in Radioactive Persons: A General Review of Data Gathered in the Study of the Radium Dial Painters, with Special Reference to the Occurrence of Osteogenic Sarcoma and the Interrelationship of Certain Blood Diseases, Am. J. Cancer **15**: 2435-2516 (Oct.) 1931.

3. Martland, H. S.: Occupational Poisoning in the Manufacture of Luminous Watch Dials, J. A. M. A. **92**: 466-552 (Feb. 9) 1929.

CONCLUSIONS

One clinical dose of thorium dioxide sol (75 cc.) gives the gamma ray equivalent of 1.37 micrograms of radium. Two micrograms of radium has produced symptoms of radium poisoning. Half of the total dose is found in the liver after death, with a large amount in the spleen and traces in the long bones.

All determinations made in this work are in close accordance with those stated in a report of the Council on Pharmacy and Chemistry of the American Medical Association.[4]

The Heyden Chemical Corporation supplied the thorium dioxide sol, stabilized (Thorotrast): Dr. Hillyer Rudisill, gave the author helpful suggestions. Roe E. Remington, Ph.D., prepared the ash.

105 Rutledge Avenue.

ESOPHAGEAL STRICTURE DILATED WITH UROLOGIC INSTRUMENTS

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Since the turn of the century the practice of medicine has become more and more a highly specialized profession. While the vast majority of physicians are still general practitioners, an ever increasing number of them are devoting their time, attention and skill to some highly specialized phase of medical practice. It is undoubtedly this extreme specialization that has stimulated the advances in medicine as they are known today.

Extreme specialization, however, is easily conducive to narrow medical thinking. It is a simple thing for one who practices a very limited field of medicine to direct his thoughts and mental processes only in that certain field of medicine and to neglect, either consciously or unconsciously, the other phases of medicine as well as the patient as a unit. While there is a very definite and necessary as well as useful place in medicine for specialization, the dangers associated with this must be avoided. These dangers are primarily the treatment of a disease or disease condition or the treatment of some organ or group of organs of the body, without the realization that it is the patient who presents complaints and not a disease condition or a diseased organ.

Fig. 1.—Stricture of esophagus, with dilatation above stricture.

Regardless of the specific complaint of the patient or of the illness that he presents, there is the prime necessity for bearing in mind the interrelationship and the interdependence, as well as the necessity for intimate cooperation, between specialists in their various fields of endeavor.

4. Thorotrast, report of the Council on Pharmacy and Chemistry, J. A. M. A. **99**: 2183 (Dec. 24) 1932.

Read before the annual meeting of the North Central Branch of the American Urological Association, Rochester, Minn., in November 1935.

The treatment of esophageal strictures is primarily the domain of the otolaryngologist. Esophageal strictures occur most frequently following the ingestion of lye, corrosive materials and some poisons, usually taken accidentally or with suicidal intent. Nature and the Almighty cooperate to thwart the desires of many of these individuals, and instead of passing to the hereafter in a peaceful manner they are forced to remain on this earth and suffer physical disabilities that make their lives more miserable than previously.

Fig. 2.—Severe cicatricial stenosis of the esophagus with pocket formation. Annular stricture in the upper half; tubular in the lower section. Preparation of the Pathologic-Anatomic Institute of Vienna.

With the development of the stricture of the esophagus there is an increasing inability to swallow solid foods, and this is soon followed by an inability to swallow even liquid foods or fluids, and finally, with the development of a very dense, tightly contracted stricture, there is an inability to swallow even water. It is unnecessary for me to give a picture of the pitiful state of these patients. The otolaryngologist attempts to treat them by dilation and bouginage of the strictures from above. However, with the development of a dense, almost impermeable stricture, he is unable to introduce even the finest of instruments past this stricture of the esophagus. The next step consists of the performance of a gastrostomy with the formation of a gastrostomy opening to the skin of the abdomen. This enables one to feed a patient through the gastrostomy wound.

At the same time efforts are made to have the patient swallow a string. If this effort is successful the string is recovered through the gastrostomy opening and it is followed by sounds of increasingly large caliber. Since

Fig. 3—Cystoscope introduced into the stomach through the gastrostomy opening. Ureteral catheter seen issuing from the patient's mouth. The patient is not anesthetized.

many of these patients are children who are highly uncooperative or adults with negativistic attitudes and since some of these strictures are absolutely impermeable to even a string, the chances of dilating the stricture from above are practically nil.

As the stricture becomes more impermeable, retention of food and of liquid becomes evident in the esophagus above the stricture, causing dilatation of that portion of the esophagus (fig. 1). As a result of this dilatation it becomes impossible for the otolaryngologist to find the upper end of the opening of the stricture. Because of the convergence of the esophageal folds and the formation of pouches and sacculations in this dilated esophagus, attempts to find an opening through which a sound or bougie can be passed from above are frequently unsuccessful (fig. 2).

In a discussion of this problem with Dr. Samuel Iglauer,[1] professor of otolaryngology at the University of Cincinnati College of Medicine and the Cincinnati General Hospital, it was suggested that a cystoscope be introduced into the stomach through the gastrostomy wound, the stomach filled with water and an attempt made to pass a ureteral catheter retrograde up the esophagus. This was done. Our technic is as follows: The stomach is thoroughly prepared by frequent washings prior to the examination. The stomach is filled with water through the gastrostomy opening and a cystoscope is introduced into the stomach (fig. 3). One

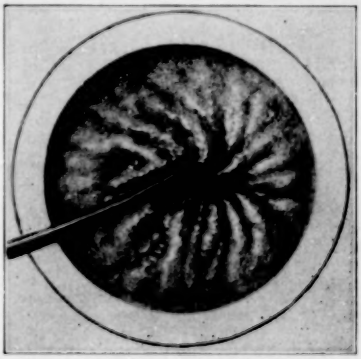

Fig. 4.—Cardia of stomach, depicting convergence of rugae toward esophageal opening. Ureteral catheter entering esophagus.

can observe the various regions of the stomach, especially the cardia. In this region one sees the folds of the stomach converge to a central point, which represents the esophageal opening (fig. 4). One then feeds a ureteral catheter through this opening and if the attempt is successful this catheter traverses the esophageal stricture and soon appears in the mouth (figs. 5 and 6). A string is then fastened to the ureteral catheter and the catheter is withdrawn, thus enabling one to recover the string through the gastrostomy wound. The treatment from this point on again becomes otolaryngologic.

The advantages of dilating the stricture from below are threefold: First, the method just described may be the only one by which any instrument can be made to traverse the esophageal stricture. Second, there is much less danger of puncturing the esophagus and causing a mediastinitis with its sequelae. Third, since a ureteral catheter is flexible it can follow the contour of the stricture, which is almost always fusiform or spiral.

1. Iglauer, Samuel: Proposed Operation for Relief of Congenital Atresia of Esophagus, Ann. Otol., Rhin. & Laryng. 43: 1147-1153 (Dec.) 1934; Impermeable Stricture of Esophagus Relieved by Retrograde Bouginage with Aid of Cystoscope Inserted Through Gastrostomy, ibid. 43: 1191-1202 (Dec.) 1934.

REPORT OF CASES

CASE 1.—M. W., a white girl, aged 3 years, swallowed some lye soap seven weeks before admission to the Children's Hospital. The mother immediately gave the child an emetic. For the next four weeks the child vomited occasionally after eating. During all this time there was an increasing feeling of malaise, and during the following three weeks the child vomited almost all the food eaten. The child was admitted to the hospital, July 8, 1934. While in the hospital vomiting persisted even with a liquid diet. X-ray studies and esophagoscopy showed a complete stricture at the juncture of the upper and middle thirds of the esophagus. Gastrostomy was recommended by the otolaryngologic service. July 17, gastrostomy was performed. A string could not be made to pass the stricture from above. Repeated x-ray films showed a shot at the end of the string to be lodged just above the stricture. September 26 a cystoscope was introduced into the water-filled stomach and a ureteral catheter was passed up and recovered in the mouth, and from that time on the esophagus was regularly dilated up to size 22 French. The child was discharged March 26, 1935, in excellent condition.

Fig. 5.—Ureteral catheter traversing lumen of esophagus.

CASE 2.—R. A., a Negro girl, aged 4 years, admitted to the Cincinnati General Hospital, Nov. 13, 1931, had swallowed some lye four weeks before admission. Her mouth was sore for a week and then she complained of an inability to swallow solid foods. There was no vomiting. This was followed by an increased inability to swallow liquid foods and then by vomiting and dehydration. On admission, attempts to have the child swallow a string were unsuccessful. December 2, esophagoscopy revealed several dense scars on the upper third of the esophagus through which the esophagoscope could be passed. In the lower third was an impassable scar. Dr. Iglauer advised gastrostomy and retrograde dilation. Gastrostomy was performed December 8. Feb. 9, 1932, a cystoscope was introduced into the water-filled stomach and a ureteral catheter was passed upward to the pharynx. Successful dilation of the strictures followed. March 2 the child pulled the string out and refused to swallow another. March 16 a cystoscope was introduced into the stomach as described previously and was again followed by successful dilations. The patient was discharged Jan. 27, 1933. Follow-up examinations, which included fluoroscopy, failed to demonstrate any destruction or constriction in the esophagus.

Fig. 6.—Ureteral catheter having been introduced through lumen and stricture of esophagus and shown appearing in mouth.

CONCLUSION

1. In cases of esophageal stricture in which dilations from above are impossible, the use of a cystoscope through a gastrostomy wound, with retrograde bouginage of the esophagus with the use of a ureteral catheter, is a practical procedure.

2. Eight patients have been treated in this manner with seven successful results.

468-471 Doctors Building.

PREGNANCY COMPLICATING SUBACUTE BACTERIAL ENDOCARDITIS

REPORT OF A CASE WITH IMMUNOLOGIC STUDIES

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AND
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Our purpose in this report is to present the clinical, bacteriologic, pathologic and immunologic observations in a case of subacute bacterial endocarditis complicated by pregnancy. Death of the mother occurred sixteen days after the delivery of a full term healthy infant.

Pregnancy complicating subacute bacterial endocarditis is of infrequent occurrence. Croom [1] reports six cases in the literature up to 1906. The subject is further reviewed by Cameron,[2] and Walser [3] in 1928 adds two cases of his own in one of which the mother gave birth to a healthy infant. Our chief concern in the present communication is to explain, if possible, the immunity of the fetus to the infection, which was definitely demonstrated to be a septicemia in the mother during the entire ninth month of gestation.

REPORT OF CASE

C. A., a woman, aged 25, was admitted to the Bronx Hospital Jan. 3, 1936, during the eighth month of her pregnancy. The chief complaints were cough and fever of three weeks' duration. There was no history of a previous rheumatic infection. On physical examination the patient did not appear acutely ill or indisposed, except for slight orthopnea. The uterus was enlarged to a degree corresponding approximately to the stage of gestation stated. The area of cardiac dulness was somewhat enlarged to the left, but no abnormal pulsations or thrills were noted. There was no edema or signs of congestive cardiac failure. Over the left side of the precordium and at the apex there was heard a soft, long, blowing systolic murmur, which was transmitted to the left. There was a low pitched systolic murmur over the aortic area and a suggestive presystolic murmur at the apex. The rhythm was regular and the blood pressure 155 mm. systolic, 60 diastolic. Taken in conjunction with the electrocardiograms, which revealed no axis deviation, the diagnosis of a combined mitral and aortic lesion was made (Dr. L. A. Kapp). On the day following admission (January 4) a positive blood culture was obtained (Streptococcus viridans). This was repeated January 10, the blood containing 400 colonies per cubic centimeter. Fluoroscopic examination January 6 showed a moderate enlargement of the left auricle and ventricle, the cardiac outline suggesting mitral and aortic disease (Dr. William Snow). The sedimentation rate of the erythrocytes was accelerated, being 18 mm. in sixteen minutes January 4 and 18 mm. in nine minutes January 13. The temperature ranged between 98 and 100 F. The patient was permitted to return to her home January 15 but was kept under

Dr. Meyer Rosensohn and Dr. Harry Aranow, attending obstetricians, cooperated in carrying out these studies.

1. Croom: Am. J. Obst. & Gynec. **10**: 22, 1908.
2. Cameron, G. S.: Acute Endocarditis in Pregnancy, Canad. M. A. J. **18**: 91 (Oct.) 1918.
3. Walser, H. C.: Subacute Bacterial Endocarditis of the Streptococcus Viridans Type in Pregnancy, with Two Case Reports, Am. J. Obst. & Gynec. **15**: 840 (June) 1928.

observation. She was readmitted January 26, at which time her temperature was 101.6 F. Induction of labor was considered inadvisable, as it was felt that no additional danger to either the mother or the baby was entailed by waiting (Dr. Harry Aranow). January 29 the mother went into labor and was delivered of a healthy, male infant weighing 5 pounds 11 ounces (2,581 Gm.). The following day pain suddenly developed in the right foot, which appeared livid and felt cold. By January 31 the entire right leg was affected, the thigh being somewhat swollen (circumference 49 cm. as against 47 cm. on the left

Fig. 1.—Area of dry gangrene involving the lower portion of the leg and entire foot due to embolism.

side). Pulsation could be felt in the femoral artery but none in the popliteal, posterior tibial or dorsalis pedis. A diagnosis of embolism of the right popliteal artery was made. February 4 a line of demarcation was clearly visible at a point approximately 7.5 cm. above the external malleolus. Below this line the skin was bluish, and a necrotic area 2.5 by 3.7 cm. was noted on the plantar surface of the right foot near the bases of the first and second metatarsal bones. In view of the progressive nature of the gangrenous lesion amputation was advised (Dr. J. L. Amster) but the patient refused operative intervention. February 3 typical embolic lesions (Roth spots) in both fundi were noted (Dr. Nathan Goodfriend). Supplementary laboratory examinations revealed the following:

Blood culture revealed Streptococcus viridans, 300 colonies per cubic centimeter, January 27, 150 colonies January 31 and 150 colonies February 6.

The blood count, January 27, showed hemoglobin 59 per cent; erythrocytes 3,400,000 per cubic millimeter; leukocytes 10,100 per cubic millimeter; mature polymorphonuclears 78 per cent, band forms 10 per cent, small lymphocytes 10 per cent, monocytes 2 per cent.

Eight examinations of the urine revealed some albumin and casts, but no erythrocytes. The absence of erythrocytes is of interest since embolic lesions were noted in the kidney sections.

The Wassermann and Kahn reactions were negative.

February 5, cultures of the breast milk, throat and urine yielded Streptococcus viridans.

Chemistry of the blood January 4 and January 27 showed dextrose 98.6 and 87.4; urea nitrogen 12.1 and 11.9; uric acid 3.8 and 3.4; creatinine 1.59 and 1.29.

Laboratory examinations of the baby revealed the following: Blood cultures: January 29 (at birth): Blood from the umbilical vessels was sterile. February 3: Blood from the superior longitudinal sinus was sterile. The blood count showed: hemoglobin 90 per cent; erythrocytes 4,700,000 per cubic millimeter; leukocytes 22,700 per cubic millimeter; mature polymorphonuclears 28 per cent, band forms 4 per cent, small lymphocytes 52 per cent, monocytes 16 per cent.

The temperature of the mother before delivery varied between 98.6 and 102 F. Three days after delivery the general trend was slightly higher, but the curve was at no time of the septic type. For five days preceding death, which occurred February 14, the temperature fluctuated between 102 and 104 F. The baby's temperature was normal throughout the twenty-four days of hospitalization.

Examination of the placenta shortly after delivery revealed no essential pathologic changes. Cultures of the blood in the umbilical vessels taken by aspiration through the seared surface of the umbilical cord proved sterile.

Permission for a limited necropsy was obtained. The relevant observations were as follows:

Skin.—A few scattered petechiae were present on the abdomen and chest. There was an area of bluish discoloration with a clear line of demarcation circumscribing the right leg at a point 7.5 cm. above the external malleolus. The toes and heel were black and appeared to be completely gangrenous. The surface was dry, the toes shrunken and an oval area of necrosis was seen on the outer aspect of the small toe. A similar area, 2.5 by 3.7 cm., was noted on the plantar aspect of the right foot at the bases of the first and second metatarsal bones.

Heart.—The heart measured 14 by 9 cm. The maximum thickness of the left ventricle was 11 mm.; that of the right ventricle was 3 cm. The aortic cusps were almost completely destroyed by a large, fungating, friable, dark red vegetation which extended upward on the interauricular septum perforating it and appearing on the mesial aspect of the right auricle. The destructive process continued downward, involving the interventricular septum, which was completely penetrated in its upper portion, where a small perforation was visible. A crushed fragment of the vegetation showed gram-positive cocci in chains. There was a small localized area of pericarditis of recent origin near the division of the right coronary artery.

Kidneys.—The right kidney measured 10 by 4 cm., the left 10 by 5 cm. Several yellowish white infarcts were present near

Fig. 2.—Large fungating destructive vegetation involving all the aortic cusps. Streptococci were present in a crushed fragment.

the surfaces of both kidneys, the largest being 2 cm. in diameter. These were visible on the surface of each kidney as irregular, depressed, firm, whitish areas.

Spleen.—The spleen was 14 by 6 cm. in size. Two wedge-shaped infarcts of a whitish hue were present at the surface, which was depressed at these points. The largest infarct measured 2 cm. in its broadest diameter.

Uterus.—The uterus was 7 cm. in diameter. The placental site was still evident at the fundus, but the general appearance was that of a normally involuting uterus.

V 19

Histopathologic Changes.—Sections of the myocardium showed no Aschoff lesions. There were both recent and old areas of productive pericarditis. In the kidneys many Baehr-Löhlein lesions were found and in the zones of infarction focal abscesses were present. The spleen showed typical infarct formation with hyaline thrombi in the splenic sinusoids throughout the section. In the placenta there was no evidence of placental necrosis or infarction, but in the epithelium covering some of the chorionic villi were seen small scattered chains of streptococci. The organisms appeared to be limited to the epithelium and were located entirely within the poorly defined cell outlines.

THEORETICAL CONSIDERATIONS

We are confronted here with the picture of Streptococcus viridans bacteremia in pregnancy with no obvious manifestations in the new-born child. The question of outstanding academic interest is the determination of the mechanism which protected the infant against an infective process of sufficient severity to prove fatal to the mother.

The apparent natural immunity of infants up to the age of 6 months to scarlet fever, diphtheria and poliomyelitis has been frequently demonstrated by many investigators. Ruh and McClelland [4] have shown in a series of ninety-five cases that mothers and infants gave corresponding reactions to the Schick test with but few exceptions. Similarly von Groer and Kussowitz [5] reported that in 143 mothers and infants 84 per cent contained equal amounts of circulating antitoxin. Reports confirming these facts were also made by Zingher,[6] Polano [7] and Kuttner and Ratner.[8] The fact that placental serum was capable of blanching the rash in scarlet fever was demonstrated by Toomey and August,[9] while Aycock and Kramer [10] showed that there was a complete correspondence of neutralizing poliomyelitis antibodies in ten out of twelve mothers and infants. Similar results in six cases of Clostridium tetani carriers were reported by Tenbroeck and Bauer.[11]

McKhann and Chu [12] studied the presence of antibodies in placental extracts. They were able to demonstrate qualitatively antibodies for diphtheria, scarlet fever, poliomyelitis and measles in these extracts of placental tissues. The following mechanisms were postulated by them for the production of this immunity:

1. Transplacental transmission of (*a*) antigen from the mother resulting in active intra-uterine immunization and (*b*) antibodies from the mother giving passive intra-uterine immunization.

2. Transmission of antibodies from mother to infant through colostrum and milk.

3. Tissue immunity of the rapidly growing infant.

A fourth possible mechanism may be added. The normal human placenta may be so morphologically constituted that it acts as a filter for bacterial or other infective agents without the presence of antibodies in the infant. The theory most commonly accepted is that the immunity in the new-born results from a passive transfer of antibodies, mainly through the placenta. In this connection it is of interest to note the observations of Slemons [13] in three cases of placental bacteremia. In one case streptococci were demonstrable in the vessels on the fetal surface of the placenta and in the umbilical vessels. In another the organisms were found in the placenta and cord and in the wall of the vein, but none were recovered from the fetal organs. The chorionic epithelium was always intact, no bacteria being found on the surface or in the interior of the villi. Slemons therefore concluded that infection did not occur from the maternal circulation and pass through the walls of the villi but that entrance was effected through the amniotic membrane with infection of the amniotic fluid.

Fig. 3.—Chorionic epithelium containing small chains of streptococci (arrow).

In the case under discussion here, two of the proposed mechanisms may be eliminated. In the first place, since the infant was never breast fed, the passage of antibodies through the colostrum or milk, as demonstrated by Kuttner and Ratner,[8] need not be considered. For the same reason the finding of Streptococcus viridans in the breast milk was not a factor. Secondly, since blood cultures of the infant were repeatedly sterile, there was no occasion for the development of an active immunity in the new-born. These cultures were taken under aseptic conditions from the umbilical vein and from the superior longitudinal sinus in the infant within a short time after birth. Sterile blood cultures, however, do not necessarily preclude the setting up of an active immunity. The possibility of bacterial metabolites passing through the placenta into the circulatory system of the infant still exists. These by-products of bacterial metabolism or even nonviable micro-organisms may act as specific antigens for the creation of protective antibodies. These are all factors that must be

4. Ruh, H. O., and McClelland, J. E.: Comparison of Diphtheria Immunity in the Mother and the New-Born, Am. J. Dis. Child. **25**: 59 (Jan.) 1923.
5. von Groer and Kussowitz, quoted from Diphtheria, London, Medical Research Council, 1923.
6. Zingher, Abraham, quoted by Aycock and Kramer.[10]
7. Polano: quoted from Diphtheria, London, Medical Research Council, 1923, p. 288.
8. Kuttner, Ann, and Ratner, Bret: The Importance of Colostrum to the New-Born Infant, Am. J. Dis. Child. **25**: 413 (June) 1923.
9. Toomey, J. A., and August, M. H.: Studies in Scarlet Fever: VII. Blanching with Placental Serum, Am. J. Dis. Child. **38**: 953 (Nov.) 1929.
10. Aycock, W. L., and Kramer, S. D.: Immunity to Poliomyelitis in Mothers and the New-Born as Shown by the Neutralization Test, J. Exper. Med. **52**: 457 (Oct.) 1930.
11. Tenbroeck, C., and Bauer, J. H.: The Transmission of Tetanus Antitoxin Through the Placenta, Proc. Soc. Exper. Biol. & Med. **20**: 399, 1923.
12. McKhann, C. F., and Chu, F. T.: Antibodies in Placental Extracts, J. Infect. Dis. **52**: 268 (March-April) 1933.
13. Slemons, J. M.: Placental Bacteremia, J. A. M. A. **65**: 1265 (Oct. 9) 1915.

taken into consideration. In the studies presented we attempted to determine the presence of humoral antibodies in the new-born and the possible rôle played by the placenta in checking the transmission of the infection to the infant.

Methods.—The bactericidal power of the mother's and infant's serum was tested in the manner to be described. This method was also utilized in experiments involving the various placental extracts. It was felt that the bactericidal titers would render a truer picture of the actual in vivo process than agglutination tests, since the correlation between the quantity of agglutinins demonstrable and the actual immunity present in the host are not always parallel. Also, the tendency to auto-agglutination which existed in the strain of Streptococcus viridans used in the experimental work prevented an accurate determination of the agglutinin titer.

TABLE 1.—*Comparative Bacteriolytic Powers of Mother's and Infant's Serums* *

Type	Serum, Mother	Organism, Streptococcus Viridans	Alexin		Growth, 48 Hour Reading
1	1 cc. 1:50	0.5 cc.	0.5 cc. 1:10	Incubated 4 hours at 37 C.	+
2	1 cc. 1:100	0.5 cc.	0.5 cc. 1:10		2+
3	1 cc. 1:200	0.5 cc.	0.5 cc. 1:10		2+
4	1 cc. 1:400	0.5 cc.	0.5 cc. 1:10		4+
5	1 cc. 1:800	0.5 cc.	0.5 cc. 1:10		4+
	Infant				
6	1 cc. 1:50	0.5 cc.	0.5 cc. 1:10		2+
7	1 cc. 1:100	0.5 cc.	0.5 cc. 1:10		2+
8	1 cc. 1:200	0.5 cc.	0.5 cc. 1:10		2+
9	1 cc. 1:400	0.5 cc.	0.5 cc. 1:10		3+
10	1 cc. 1:800	0.5 cc.	0.5 cc. 1:10		4+
11	1 cc. saline	0.5 cc.	0.5 cc. 1:10		4+
12	1.5 cc. saline	0.5 cc.	0		4+

* In the table 0 indicates no growth; +, less than 20 colonies; 2+, less than 100 colonies; 3+, sparse growth (more than 100 colonies); 4+, heavy growth (colonies confluent).

The actual set-up in the tests is detailed in the tables. To 1 cc. of the diluted serum or placental extract was added 0.5 cc. of fresh guinea-pig serum diluted 1:10 and 0.5 cc. of an eighteen-hour blood broth culture of the organism Streptococcus viridans. The tubes containing these mixtures were incubated in the water bath at 37 C. for four hours, during which time they were frequently shaken. Immediately after incubation a standard size loopful from each tube was streaked on a blood agar plate. These plates contained 5 per cent sterile rabbit blood plus 2 per cent dextrose and the prepared mediums were tested for sterility before use.

Although a quantitative determination of the bacteriolytic action was not made, the differences in growth, recorded in the accompanying tables, were easily discernible and the possibilities for subjective errors were thus greatly lessened.

Materials.—Organism: Streptococcus viridans. This strain was obtained from the blood culture of February 6.

Alexin: Fresh guinea-pig serum diluted 1:10. Pooled serums were used in all tests.

Serums: These were obtained from both the mother and the infant during the week following delivery.

Saline Solution: A 0.85 per cent solution was used throughout.

Placental Extracts.—The placentas received directly from the delivery room were washed in running cold water to remove the superficial blood and débris. The excess water was then drained off. A weighed portion of this tissue was macerated with sand in a mortar. The ground tissue was then taken up in sterile saline solution to make up a 20 per cent suspension. The material was allowed to extract overnight at icebox temperature. Sterile Seitz filtrates of these preparations were used in the tests and designated as saline extracts.

The alcoholic extracts were prepared as follows: The preliminary steps were identical with those just described. The macerated tissue was taken up with alcohol-ether mixtures (3 parts of 95 per cent alcohol plus 1 part of anhydrous ether) to make up a 20 per cent suspension. This preparation was extracted overnight at icebox temperature, then filtered. The clear filtrate was evaporated to dryness at a temperature not exceeding 37 C. The sediment was then taken up in saline solution up to the original volume and passed through a Seitz filter. All extracts were bacteriologically sterile when used.

Results.—The results obtained in testing the bactericidal properties of the serums and placental extracts are recorded in the accompanying tables. A comparison of the mother's and infant's serums as shown in table 1 indicate a transplacental transmission of the humoral antibodies without a diminution in quantity. Both serums showed lytic action in a dilution no higher than 1:200.

The extracts of the mother's placenta showed definite lytic properties. With the saline extract the titer was 1:160, while with the alcoholic preparation the titer was practically the same; i. e., 1:200. These titers appear the more significant when contrasted with the almost complete absence of bactericidal properties in any of the three normal placental extracts. While with the saline extract of the mother's placenta there was complete inhibition of growth in dilutions of 1:20 and 1:40, there was but partial inhibition in a dilution of 1:50 with but one of the three extracts of the normal placentas.

TABLE 2.—*Bacteriolytic Properties of Placental Extracts from Patient and from One Normal Control*

Tube	Placental Extract, Mother's Placental Extract	Organism, Streptococcus Viridans	Alexin		Growth, 48 Hour Reading
1	Saline extract 1 cc. 1:20	0.5 cc.	0.5 cc. 1:10	Incubated 4 hours at 37 C.	0
2	Saline extract 1 cc. 1:40	0.5 cc.	0.5 cc. 1:10		0
3	Saline extract 1 cc. 1:80	0.5 cc.	0.5 cc. 1:10		2+
4	Saline extract 1 cc. 1:160	0.5 cc.	0.5 cc. 1:10		3+
5	Saline extract 1 cc. 1:320	0.5 cc.	0.5 cc. 1:10		4+
6	Alcoholic extract 1 cc. 1:50	0.5 cc.	0.5 cc. 1:10		+
7	Alcoholic extract 1 cc. 1:100	0.5 cc.	0.5 cc. 1:10		2+
8	Alcoholic extract 1 cc. 1:200	0.5 cc.	0.5 cc. 1:10		3+
9	Alcoholic extract 1 cc. 1:400	0.5 cc.	0.5 cc. 1:10		4+
10	Alcoholic extract 1 cc. 1:800	0.5 cc.	0.5 cc. 1:10		4+
	Normal				
11	Saline extract 1 cc. 1:20	0.5 cc.	0.5 cc. 1:10		4+
12	Saline extract 1 cc. 1:40	0.5 cc.	0.5 cc. 1:10		4+
13	Saline extract 1 cc. 1:80	0.5 cc.	0.5 cc. 1:10		4+
14	Saline extract 1 cc. 1:160	0.5 cc.	0.5 cc. 1:10		4+
15	Saline extract 1 cc. 1:320	0.5 cc.	0.5 cc. 1:10		4+
	Normal				
16	Alcoholic extract 1 cc. 1:50	0.5 cc.	0.5 cc. 1:10		2+
17	Alcoholic extract 1 cc. 1:100	0.5 cc.	0.5 cc. 1:10		4+
18	Alcoholic extract 1 cc. 1:200	0.5 cc	0.5 cc. 1:10		4+
19	Alcoholic extract 1 cc. 1:400	0.5 cc.	0.5 cc. 1:10		4+
20	Alcoholic extract 1 cc. 1:800	0.5 cc.	0.5 cc. 1:10		4+
21	1 cc. saline	0.5 cc.	0.5 cc. 1:10		4+
22	1.5 cc. saline	0.5 cc.	0		4+

It should be noted that in the preparation of the placental extracts it was practically impossible to remove the traces of blood. Since the mother's blood showed lytic antibodies, it might be inferred that this remaining blood serum in the placenta accounted for the positive results in the extracts of the mother's placenta as compared with the normal controls. That this inference is

not of great validity can be demonstrated in this manner. The titer of the serum was 1:200 (table 1). The titer of the mother's placenta was 1:160 with the saline extract and 1:200 with the alcoholic extract. Since these last two dilutions were prepared from 20 per cent suspensions, it is easily computed that the actual dilution of the placenta was 1:800 with the saline extract and 1:1,000 with the alcoholic extract. Also, when it is considered that a good part of the blood in the placenta was washed out, the effect of the humoral antibodies in the placental extracts appears negligible.

CONCLUSIONS

1. The clinical, bacteriologic and pathologic changes typical of subacute bacterial endocarditis in a case here presented were complicated by pregnancy.

2. Immunologic studies indicate (*a*) that the bacteriolysins present in the mother's serum for this strain of Streptococcus viridans were transmitted to the infant

TABLE 3.—*Bacteriolytic Properties of Placental Extracts from Two Normal Controls*

Tube	Placental Extract, Normal Placental Extract	Organism, Streptococcus Viridans	Alexin		Growth, 48 Hour Reading
1	Alcoholic extract 1 cc. 1:50	0.5 cc.	0.5 cc. 1:10	Incubated 4 hours at 37° C.	4+
2	Alcoholic extract 1 cc. 1:100	0.5 cc.	0.5 cc. 1:10		4+
3	Alcoholic extract 1 cc. 1:200	0.5 cc.	0.5 cc. 1:10		4+
4	Alcoholic extract 1 cc. 1:400	0.5 cc.	0.5 cc. 1:10		4+
5	Alcoholic extract 1 cc. 1:800	0.5 cc.	0.5 cc. 1:10		4+
6	Saline extract 1 cc. 1:50	0.5 cc.	0.5 cc. 1:10		4+
7	Saline extract 1 cc. 1:100	0.5 cc.	0.5 cc. 1:10		4+
8	Saline extract 1 cc. 1:200	0.5 cc.	0.5 cc. 1:10		4+
9	Saline extract 1 cc. 1:400	0.5 cc.	0.5 cc. 1:10		4+
10	Saline extract 1 cc. 1:800	0.5 cc.	0.5 cc. 1:10		4+
11	Alcoholic ext. no. 2 1 cc. 1:50	0.5 cc.	0.5 cc. 1:10		4+
12	Alcoholic ext. no. 2 1 cc. 1:100	0.5 cc.	0.5 cc. 1:10		4+
13	Alcoholic ext. no. 2 1 cc. 1:200	0.5 cc.	0.5 cc. 1:10		4+
14	Alcoholic ext. no. 2 1 cc. 1:400	0.5 cc.	0.5 cc. 1:10		4+
15	Alcoholic ext. no. 2 1 cc. 1:800	0.5 cc.	0.5 cc. 1:10		4+
16	Saline ext. no. 2 1 cc. 1:50	0.5 cc.	0.5 cc. 1:10		4+
17	Saline ext. no. 2 1 cc. 1:100	0.5 cc.	0.5 cc. 1:10		4+
18	Saline ext. no. 2 1 cc. 1:200	0.5 cc.	0.5 cc. 1:10		4+
19	Saline ext. no. 2 1 cc. 1:400	0.5 cc.	0.5 cc. 1:10		4+
20	Saline ext. no. 2 1 cc. 1:800	0.5 cc.	0.5 cc. 1:10		4+
21	1 cc. saline	0.5 cc.	0.5 cc. 1:10		4+
22	1.5 cc. saline	0.5 cc.	0		4+

without a diminution in titer; (*b*) that the placental extracts of the infected patient demonstrated marked bactericidal properties as compared to those of three normal controls.

3. The finding of streptococci in the chorionic epithelium suggests the possibility of a protective filtration action by the cells covering the villi.

4. It seems probable that at least three factors were responsible for the nontransmission of Streptococcus viridans bacteremia from mother to fetus; namely, circulating antibodies, antibacterial properties of the placenta and protective action of the chorionic epithelium.

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The Time Inevitably Comes.—In our present day when so great emphasis is being laid on keeping people well by periodic health examinations and preventive medicine, all this about medical practice may sound very old fashioned. But say what one will, the time inevitably comes to each and every one, now in the best of health, when he must needs cry out for some experienced and sensible doctor who can alleviate if not cure his particular ailments, be they physical or mental; and the kind of sagacity and resourcefulness he will expect and need is less laboratory born than bred of long and sympathetic familiarity with the anxieties and complaints of ailing, damaged, and worn-out human beings.—Cushing, Harvey: Consecratio Medici and Other Papers, Boston, Little, Brown & Co., 1928.

METASTATIC TUMOR OF THE HEART

A CASE DIAGNOSED DURING LIFE

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New growths in the heart, either primary or secondary, are relatively rare. In the statistics compiled by Mead,[1] primary neoplasm of the heart occurred in 0.03 per cent and secondary in 0.5 per cent of all autopsies. The infrequency of metastatic neoplasm of the heart has been attributed to the rapid cardiac vascular flow and to the nature of cardiac muscle, a medium unsuited to tumor growth.[2] The literature on the subject to 1930 has been thoroughly reviewed by Yater[3] and since then by Mead[1] and by Gilchrist and Millar.[4]

The diagnosis of either primary or metastatic tumor of the heart has seldom been made before death. Primary tumor of the heart has been recognized during life three times[5] and metastatic tumor five times.[6] The antemortem diagnosis of pericardial metastasis has been made twice.[7]

The symptoms of cardiac tumor have been classified by Fishberg[6] and Yater.[3] These authors emphasize the presence of signs and symptoms of heart disease, difficult of interpretation and not responsive to the usual therapy. There is no pathognomonic sign or symptom of cardiac tumor. However, three features, any one of which might suggest the clinical diagnosis, are heart block, arrhythmias or symptoms and signs of cardiac insufficiency without apparent cause in a patient with a known malignant process, and the accumulation of bloody fluid in the pericardial sac. It is to be stressed that very extensive involvement of the heart may occur without any disturbance of its function. A series of fourteen instances of metastatic tumor of the heart has been reported in which no case showed any symptoms of cardiac involvement during life.[8] As Gilchrist and Millar[4] state, "the most characteristic feature [of cardiac tumor] is the inability to ascribe a satisfactory etiological cause for the obvious signs of organic heart disease."

Metastatic tumor of the heart may occur from a primary source in any organ of the body by hematogenous or lymphatic routes or by direct extension. It

From the Medical Clinics and Departments of Pathology of the Peter Bent Brigham Hospital and Harvard Medical School.

1. Mead, C. H.: Metastatic Carcinoma of the Heart Secondary to Primary Carcinoma of the Lung, J. Thoracic Surg. **2**: 87 (Oct.) 1932.

2. Burrows, M. T.: The Mechanism of Cancer Metastasis, Arch. Int. Med. **37**: 453 (April) 1926.

3. Yater, W. M.: Tumors of the Heart and Pericardium, Arch. Int. Med. **48**: 627 (Oct.) 1931.

4. Gilchrist, A. R., and Millar, W. G.: Paroxysmal Auricular Tachycardia Associated with a Primary Cardiac Tumor, Edinburgh M. J. **43**: 243 (April) 1936.

5. Pavlovsky, R. A.: Ueber Herz Thromben: Gestielte Thromben oder wahre Polypen des Herzens, Ztschr. f. klin. Med. **26**: 483, 1894. Barnes, A. R.; Beaver, D. C., and Snell, A. M.: Primary Sarcoma of the Heart: Report of a Case with Electrocardiographic and Pathological Studies, Am. Heart J. **9**: 480 (April) 1934. Shelburne, S. A.: Primary Tumors of the Heart; with Special Reference to Certain Features Which Led to a Logical and Correct Diagnosis Before Death, Ann. Int. Med. **9**: 340 (Sept.) 1935.

6. Rösler, O. A.: Vier Seltener Herzbefunde, ein Beitrag zur Herz Diagnostik, Ztschr. f. Herz. u. Gefässkr. **16**: 261, 1924. Willius, F. A., and Amberg, Samuel: Two Cases of Secondary Tumor of the Heart in Children, in One of Whom the Diagnosis Was Made During Life, M. Clin. North America **13**: 1307 (May) 1930. Fishberg, A. M.: Auricular Fibrillation and Flutter in Metastatic Growths of Right Auricle, Am. J. M. Sc. **180**: 629 (Nov.) 1930.

7. Zemansky, A. P., Jr.: Examination of Fluids for Tumor Cells: Analysis of 113 Cases Checked Against Subsequent Examination of Tissue, Am. J. M. Sc. **175**: 489 (April) 1928. Heninger, B. R.: Clinical Aspects of Pericardial Metastasis, Ann. Int. Med. **7**: 1359 (May) 1934.

8. Burke, E. M.: Metastatic Tumors of the Heart, Am. J. Cancer **20**: 33 (Jan.) 1934.

is stated, however, that the heart is seldom involved by continuity from neighboring organs.[9] Pic and Bret[10] first stressed the association of cardiac neoplasm with primary or secondary intrathoracic tumors. According to Mead,[1] extension into the heart from primary pulmonary carcinoma occurs in 0.26 per cent of cases, indeed a rarity in view of the relative infrequency of bronchogenic neoplasm.

The present communication concerns a patient in whom cardiac disturbances developed resulting from metastatic carcinoma of the heart, which was diagnosed clinically. The primary tumor was in the right main stem bronchus and reached the heart by direct extension, with associated auricular flutter. Only one other instance of auricular flutter resulting from cardiac metastasis has been diagnosed ante mortem, that one from a reticulum cell sarcoma of cervical lymph nodes (Fishberg's[6] case 3). A case of congenital rhabdomyoma of the heart[11] and another of metastatic tumor of the pericardium[12] had associated auricular flutter, but the neoplasms were not recognized in either instance during life. In the 3,570 autopsies performed in the Peter Bent Brigham Hospital (1913-1936) there have

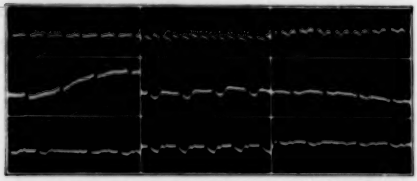

Fig. 1.—Upper tracing, taken July 27, 1936: auricular flutter present on admission. Middle tracing, taken August 3: nodal rhythm present on the eighth hospital day, following six days of normal sinus rhythm after the cessation of flutter. Lower tracing, taken August 5: partial heart block.

been in all nineteen instances of cardiac neoplasm, an incidence of 0.53 per cent. None of these except the one here reported were recognized during life. One instance of primary tumor of the heart has been included in this series of autopsies. It has been described elsewhere.[13]

REPORT OF CASE

History.—M. S., a man, aged 64, German, a chef, admitted to the hospital July 27, 1936, complained of shortness of breath, cough, swelling of the ankles and loss of weight and appetite.

Two and a half years previously a cough developed, which persisted and became worse in the few months before entry. At the time of admission he was producing a cupful daily of white, frothy sputum. On one occasion, three or four months before, there was blood streaking of the sputum. For nine months dyspnea had been present, first on exertion and later at rest. There had been some wheezing for days at a time but not occurring in definite attacks. He never had pain in the chest. For the past year he had had anorexia, insomnia and a loss of 58 pounds (27 Kg.). For two and one-half months he had noticed attacks of palpitation of the heart of a few seconds' duration. Two weeks before entry swelling of the ankles occurred, which prompted him to enter another hospital. There a heart rate of 176 was recorded but without mention of the type of rhythm. He was transferred later to the Peter Bent Brigham Hospital for further study.

9. Morris, L. M.: Metastases to the Heart from Malignant Tumors, Am. Heart J. **3**: 219 (Dec.) 1927.
10. Pic, A., and Bret, J.: Contribution à l'étude du cancer sécondaire du coeur, Rev. de méd. **11**: 1022, 1891.
11. Wegman, M. E., and Egbert, D. S.: Congenital Rhabdomyoma Associated with Arrhythmia, J. Pediat. **6**: 818 (June) 1935.
12. Auerbach, Oscar; Epstein, Harry, and Gold, Harry: Metastatic Carcinoma of the Heart, Am. Heart J. **12**: 467 (Oct.) 1936.
13. Houck, G. H., and Bennett, G. A.: Polypoid Fibroma of the Left Auricle (So-Called Cardiac Myxoma) Causing a Ball-Valve Action, Am. Heart J. **5**: 787 (Aug.) 1930.

Examination.—The patient was well developed and fairly well nourished but very apprehensive and orthopneic. There was slightly more fulness of the right supraclavicular fossa than of the left. The trachea was deviated to the right. Rapid, regular pulsations could be seen in the distended veins of the neck. The heart was moderately enlarged; there was a scratching quality to the sounds, but no murmurs were heard. The rate was regular at 176 per minute, temporarily slowed to just half that rate by right carotid sinus pressure. Blood pressure was 80 mm. of mercury systolic, 60 diastolic. The right side of the chest was diminished in excursion. Posteriorly it was dull to percussion throughout and accompanied by absent breath sounds and diminished tactile fremitus to the level of the angle of the scapula. A few fine râles were present over the apex. Anteriorly there was dulness and absent tactile fremitus below the level of the third rib. The left lung presented a few râles at the base. The hands were cyanotic and edematous, the left more than the right. The fingers showed definite clubbing. There was marked soft pitting edema of the feet and ankles. The hemoglobin was 75 per cent (Sahli); erythrocytes numbered 4,580,000 and white blood cells 10,400 per cubic millimeter of blood. The Wassermann and Hinton reactions for syphilis were negative. No tumor cells were seen in the sputum.

An electrocardiogram taken immediately after examination confirmed the presence of auricular flutter (fig. 1, upper tracings). A thoracentesis on the right side yielded 1,800 cc. of straw colored fluid with a specific gravity of 1.020, containing 1,300 red blood cells and 1,600 white blood cells per cubic millimeter. No tumor cells were found. In the first twenty-four hours he was given 1.4 Gm. of digitalis folia by mouth. The auricular flutter changed to a normal sinus rhythm with a rate of 104. On the third day a second thoracentesis was done with the removal of 1,100 cc. of sanguineous fluid with a specific gravity of 1.017, containing 47,000 red blood cells and 100 white blood cells per cubic millimeter. Tumor cells were demonstrated in the sediment studied in paraffin sections. The presence of tracheal displacement toward the side of the chest containing so much fluid suggested atelectasis of a portion of the right lung, further evidence of probable neoplasm occluding a bronchus. By the fourth day the swelling of both hands had extended to involve the forearms, and there was visible edema of the face and neck. A portable roentgenogram of the chest showed tracheal deviation, and a hydropneumothorax to the fifth rib posteriorly, practically obscuring the right lung field so that the presence or absence of carcinomatous growth could not be determined.

With this evidence a clinical diagnosis was made of carcinoma of the right bronchus, with involvement, probably by direct extension, of the right auricle and superior vena cava as an explanation for the disturbances of cardiac rhythm, and the edema of the face, neck and forearms.

On the eighth hospital day, additional electrocardiograms showed nodal rhythm (fig. 1, middle tracings), and two days later partial heart block (fig. 1, lower tracings). On the twelfth day the patient was seen by Dr. Lyman Hoyt, visiting physician to the hospital, who independently suggested that "with a probable malignancy in the lung and the evidence of disease in the heart, because of the many different rhythms, one might suspect malignant metastases to the heart from the lung."

In the first three weeks seven thoracenteses were performed, with removal of a total of 5,875 cc. of fluid. In all but the first instance the fluid was sanguineous. Four of these seven specimens showed tumor cells in paraffin sections of the sediment. Intensive roentgen therapy to the chest was begun, but fluid continued to accumulate so that thoracenteses were necessary every three or four days. After receiving a total of nine roentgen treatments, totaling 2,700 roentgens, he seemed somewhat more comfortable for the next week. On the thirty-first day the electrocardiograms showed delayed auriculoventricular conduction and premature ventricular beats. Edema of the arms and pleural effusion persisted. The patient became progressively worse and died somewhat unexpectedly on the thirty-fifth day in the hospital (August 30).

Autopsy.—The anatomic diagnoses were bronchogenic carcinoma of right primary bronchus with extension into the right auricle and superior vena cava; metastasis to the epicardium and right pleura; thrombosis of innominate and subclavian veins on both sides; pulmonary atelectasis on the right; bronchopneumonia on the left, and acute bilateral pleuritis.

V 19

The right primary bronchus was completely occluded by a white, soft, friable tumor mass 1.5 cm. from its origin. Section showed that the tumor mass was 9 cm. in diameter. It replaced almost completely the middle lobe and extended for a short distance into both upper and lower lobes, with resultant atelectasis. The tumor also extended by way of the mediastinum to involve the right auricle and the mouth of the superior vena cava. The right pleural cavity contained 500 cc. of sanguineous, slightly turbid fluid. There were many fibrous adhesions between the parietal and visceral pleurae. When these were broken a gelatinous layer of metastatic tumor was found over the visceral pleura. The left pleural cavity contained 200 cc. of similar fluid but there was no evidence of metastatic tumor. The left lung showed an early bronchopneumonia in both lobes.

The pericardium showed a moist, glistening surface. On the posterolateral aspect of the heart near the origin of the pulmonary artery there were multiple small nodules of firm, white tumor tissue averaging 3 mm. in diameter on the visceral layer of the pericardium. Another similar nodule was found overlying the anterior wall of the left ventricle adjacent to the left coronary artery. As the heart was opened, a mass of tumor measuring 0.7 by 1 cm. was found on the posterior wall of the right auricle in the region of the sino-auricular node. This lay just beneath the endocardium and elevated but did not erode it. Dissection showed it to be continuous with the primary tumor mass in the right bronchus. The remainder of the wall of the right auricle in the region of the mouth of the superior vena cava was firm and rigid because of tumor invasion. As the superior vena cava was followed upward, it was found that the tumor extended into its lumen and occupied most of it at a level 1 cm. above the opening into the right auricle. The mass of neoplasm, irregular in outline, could be followed upward only 0.5 cm. Beyond that point a firm, grayish red thrombus free from tumor was found. This continued so as to occlude both innominate veins. In the subclavian veins the thrombus extended for approximately 2 cm. but did not entirely occlude their lumens.

Histologically, the tumor was a small cell carcinoma. The cells were arranged in masses separated by a small amount of connective tissue stroma. Mitoses were numerous. The tumor, while displaying a distinctly epithelial structure, showed no differentiation into epidermoid or glandular elements. Adjacent to the tumor in the heart, the muscle fibers showed much atrophy with vacuolization and nuclear degeneration.

COMMENT

This case presents an unusual opportunity to follow the development of neoplasm in the heart by repeated clinical studies, electrocardiograms and necropsy. The presence of auricular flutter on admission, with the suspicion of a bronchogenic neoplasm, suggested that there might be encroachment of the tumor growth on the right auricle of the heart. Definite localization was difficult, but with the presence of edema of the hands we thought that the tumor was probably in the region of the superior vena caval opening and possibly disturbing the sino-auricular node. The flutter mechanism allowed us to assume that the auricles were being involved by tumor but it did not allow us to conclude that the sino-auricular node was necessarily involved. Invasion of this region suggested itself first by the edema present and then by the subsequent assumption of the rôle of the pacemaker of the heart by the auriculoventricular node. If the tumor invasion was the cause of the auricular flutter mechanism, it is very striking that digitalis caused this to revert, probably through the sequence of auricular fibrillation, to a normal sinus rhythm. This response to digitalis was similar to that seen in about one third of the instances of auricular flutter associated with valvular or myocardial heart disease. It might have been expected that continued growth of the tumor would have caused recurring attacks of auricular flutter, or perhaps fibrillation, but that did not occur. Possibly the continued administration of digitalis prevented it.

Of further interest is the fact that, after six days of normal sinus rhythm following the cessation of the auricular flutter, auriculoventricular nodal rhythm was shown in the electrocardiogram. It is stated that the auriculoventricular node has its own irritability and rhythmicity.[14] Further, it has been taught [15] that marked depression of the normal pacemaker of the heart (the sino-auricular node) and failure of any other part of the auricular muscle to assume its rôle may cause the auriculoventricular node to take on, at least temporarily, the rôle of pacemaker of the heart. It seems fair to consider that the tumor growth in the right auricle caused depression of the sino-auricular node and that the auriculoventricular node assumed the rôle of pacemaker. It was transient, however, since subsequent electrocardiograms showed supraventricular sinus rhythm (fig. 1, lower tracings). These subsequent changes seen in the electrocardiograms served to strengthen the clinical diagnosis of metastatic tumor of the heart.

Fig. 2.—Section of the wall of the right auricle in the region of the sino-auricular node. The endocardium at the top is intact. A very thin layer of atrophic muscle persists beneath it. Most of the wall of the auricle has been replaced by the carcinoma, which occupies the middle and lower portions of the section. Hematoxylin and eosin, × 165.

As shown at autopsy, there was direct extension of growth of tumor into the right auricle, the least frequent mode of metastasis to the heart. Direct extension of pulmonary tumors to the heart have been reported by Geipel,[16] Napp,[17] Morison,[18] Fishberg [6] (two cases), Yater [3] and Mead.[1]

The occlusion of the lumen of the superior vena cava by tumor, which is also uncommon, adequately explained the edema of the upper portion of the body. Similar

14. Levine, S. A.: Clinical Heart Disease, Philadelphia, W. B. Saunders Company, 1936, p. 361.
15. White, P. D.: Heart Disease, New York, Macmillan Company, 1932, p. 684.
16. Geipel, P.: Geschwülstbildung im Herzen, Centralbl. f. allg. Path. u. Path. anat. **10**: 846, 1899.
17. Napp, O.: Ueber sekundäre Herzgeschwülste, Ztschr. f. Krebsforsch. **3**: 282, 1905.
18. Morison, quoted by Windholz, F.: Virchows Arch. f. path. Anat. **273**: 311, 1929.

instances of vena caval occlusion by neoplasm have been reported by Ehrenberg,[19] Binder,[20] Fishberg,[6] Barnes [5] and Helwig.[21] To our knowledge, except for the cases reported by Barnes and Fishberg, the finding of edema in those instances did not prompt a clinical diagnosis of such tumor extension. The physical finding of edema of the face and arms in cases of cardiac tumor usually causes the diagnosis of mediastinal tumor to be made.[5] The presence of edema of the face and arms, along with the disturbed cardiac rhythm, indicated to us that there was tumor in the region of the opening of the superior vena cava. To be sure, it was impossible to determine whether the superior vena caval obstruction was due to pressure from without or to growth of tumor within its lumen. Necropsy showed the latter to be the case.

SUMMARY

In the case presented, a carcinoma of the right primary bronchus had invaded directly the wall of the right auricle in the region of the sino-auricular node.

The diagnosis of secondary involvement of the heart by neoplasm was made clinically because of development of disturbances of cardiac rhythm in a patient with a carcinoma of the right lung.

The tumor also invaded the superior vena cava with consequent venous stasis of the upper portion of the body.

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ALAR SCAPULA

TRAUMATIC PALSY OF SERRATUS MAGNUS

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Although this subject is not new and has been referred to in the medical literature occasionally since Berger's [1] original monograph in 1875, we feel that attention should be again given to it, especially to clarify its etiology and to stress its adequate treatment. This is supported by the fact that at a recent meeting of representative surgeons, a similar case was shown without any suggestions offered as to the proper treatment.

The literature on this subject in regard to its etiology is indefinite, with many of the authors favoring the view that the disability is due to traumatic rupture of the serratus magnus at its scapular insertion. Only one author was able definitely to palpate a hiatus between what he considered the retracted portion of the muscle and the edge of the scapula. Although other authors consider that the long thoracic nerve of Bell may have been injured, their writings lead one to suspect that they favor the theory of laceration of the serratus muscle as the etiologic factor for the deformity in some of their cases.

The positive differentiation as to which factor is directly responsible for this condition is difficult to ascertain clinically because of the inaccessibility of the motor points of the serratus magnus muscle. On electrical stimulation of the long thoracic nerve of Bell in the cases in which the deformity is due to nerve injury, there will be no response. Likewise, if the muscle is completely torn, such stimulation to the nerve will not cause movement of the scapula. Owing to the difficulty of stimulating the motor points of the serratus magnus muscle, one cannot elicit contractions of the muscle that can be noted by the movements of the scapula to prove complete laceration of the muscle at its scapular insertion. It seems logical to conclude that muscle laceration, if present, should cause in addition to loss of function local tenderness, pain, swelling and at least in some cases superficial ecchymosis after the lapse of a few days, owing to the absorption of the hematoma. These changes were not noted in the four cases we observed and are reporting, nor were they noted in the majority of cases reported in the literature. Furthermore, relatively late conservative treatment of cases due to laceration of the serratus magnus muscle should not result in improvement or cure of the condition.

It is a well known fact that, following an injury to a peripheral motor nerve which does not result in laceration of the nerve, immobilization of the part in a position so that the muscles supplied by the nerve are relaxed favors return of function in the muscle with regeneration of the nerve. Therefore, if cases seen relatively late after the original injury are treated by immobilization in the position of election for relaxation of the involved muscles and result in return of function of the muscles, it is logical to conclude that the injury sustained was to the motor nerve rather than to the muscle itself.

It is our contention that the vast majority of these cases are due to nerve concussion rather than to laceration of the muscle. If this contention is true, it logically follows that immediate active treatment should be instituted in all such cases encountered.

ANATOMY

Eshner,[2] in a study of the anatomic considerations involved in serratus magnus palsy, was impressed by the following important considerations:

Many large and powerful muscles that control the motion of the shoulder and the upper extremity are attached to the scapula. The trapezius elevates the scapula, causing elevation of the acromial process and outward rotation of the lower angle. The lower angle is rotated mediad by the rhomboids. The serratus magnus moves the scapula outward, forward and slightly upward. It rotates the scapula on its inner angle and elevates the acromion, but this motion is opposed by the elevator muscle of the angle of the scapula and the rhomboids. It maintains approximation of the scapula to the thoracic wall. The actions of the different muscles are not simple, but complicated, so that any deficiency that might result from loss of function of any one or more might be in a large measure compensated for by others.

The position of the scapula when the arm is at rest in the presence of paralysis of the serratus magnus is as follows: The scapula is elevated and its inner border is approximated to the vertebral column and directed obliquely upward and outward from below, while the inferior angle exhibits a winglike projection backward and the outer border assumes a more nearly horizontal position. The superficial and long course of the supplying nerve—the long thoracic nerve of Bell—on the side of the neck and chest exposes the nerve to injury in its peripheral course.

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19. Ehrenberg, L.: Zwei Fälle von Tumor in Herzen, Deutsches Arch. f. klin. Med. **97**: 272, 1909.
20. Binder, A.: Ein Fall von primären Sarkom des Herzens, Verhandl. d. deutsch. path. Gesellsch. **16**: 417, 1913.
21. Helwig, F. C.: Tumors of the Heart, J. Kansas M. Soc. **36**: 265 (July) 1935.

From the Department of Surgery (orthopedic) Rush Medical College and Cook County Hospital.

1. Berger, C.: Die Lähmung des Nervus thoracicus longus (Lähmung des Musc. serratus antic. maj.), Breslau, M. Cohn & Weigert, 1873.

2. Eshner, A. A.: Three Cases of Paralysis of the Serratus Magnus and the Trapezius Alar Scapula, J. A. M. A. **38**: 300-306 (Feb. 1) 1902.

ETIOLOGY

The common causes of injury are a blow, a fall, pressure from heavy weights or puncture wounds involving the supraspinatus region or compression of the scalenus medius muscle through which the nerve passes or along its course in the axillary space. Excluding trauma, the nerve of Bell may be involved in inflammatory or degenerative processes induced by factors that predispose to rheumatism, such as cold and wet; or inflammation of the long thoracic nerve may develop as a complication to febrile diseases such as typhoid, influenza, diphtheria or puerperal sepsis. The serratus may be involved along with the other shoulder muscles in the muscular dystrophies, in anterior poliomyelitis and occasionally in direct injury to the muscle. Hysterical paralysis of the muscle has been reported.

Although paralysis of the serratus magnus is thought to occur more commonly in men than in women, because of the etiologic factors involved, our four cases in this report have occurred in women. All of these cases being reported occurred in the right shoulder in adults. However, the condition has been noted in children as a result of anterior poliomyelitis.

PATHOLOGY

In our group of cases the essential pathologic condition is deduced to have been a concussion of the long thoracic nerve of Bell followed by degenerative changes in the nerve and atrophy of the serratus magnus muscle. This deduction seems justified because the disability in each of the four cases was noted immediately after the patient sustained a rather severe trauma localized to the right shoulder region and because the resultant disability was cured by a treatment proposed to facilitate return of function to a muscle the motor nerve of which has suffered a concussion.

PATHOGENESIS

In case 1 the disability occurred subsequent to the effort associated with pulling on straps to aid in the bearing down maneuver during childbirth. In this case the nerve was probably injured at the point where it passes through the scalenus medius muscle. In cases 2, 3 and 4 the disability occurred subsequent to a rather severe trauma to the right shoulder region.

SYMPTOMS

The patients were unable to elevate the arm above the horizontal, and when this was attempted the median border of the scapula approached the vertebral spines. If the arm was held horizontally in front, the median border and the inferior angle of the scapula were removed from the thorax and the scapula stood out like a wing, forming a cavity into which the hand could be inserted under the scapula. The arm could be elevated above the horizontal by the accessory muscles, especially if the upper portion of the body was inclined backward or if the inferior angle was rotated downward and outward and if pressure was applied to approximate the scapula to the thorax. There was weakness of the arm and the patients were unable to cross the arms anteriorly or to apply pressure, as in pushing. Pain was invariably associated with the physical disability and was referred to the back and shoulder regions.

TREATMENT

Thomson and Miles [3] advised conservative treatment, consisting essentially of strychnine, muscle and nerve tonics (?), massage and faradic stimulation. They suggested the mechanical use of a padded belt for pressure over the scapula to maintain the scapula against the thoracic wall. They consider two methods of operative intervention: (1) transplantation of the latissimus dorsi over the inferior angle of the scapula to diminish the deformity and (2) transplantation of the clavicular origin of the pectoralis major to the serratus magnus or the axillary border of the scapula.

Skillern [4] treated one case by rest, massage and strychnine and after three months, when no improvement was noticed, advised operative measures. He formulated a procedure whereby the proximal end of the short subscapular nerve was to be anastomosed to the distal end of the sectioned long thoracic nerve of Bell. This procedure was not attempted, as far as we could determine from the literature.

Gower advised the use of an airplane type of splint, faradic stimulation, massage and muscle training. If these measures did not give results, he stated that the operative procedures advocated by Thomson and Miles or Skillern should be attempted. He reported one case with a successful outcome under conservative measures and four cases with no improvement. He does not state whether operation was performed in any of the unimproved cases.

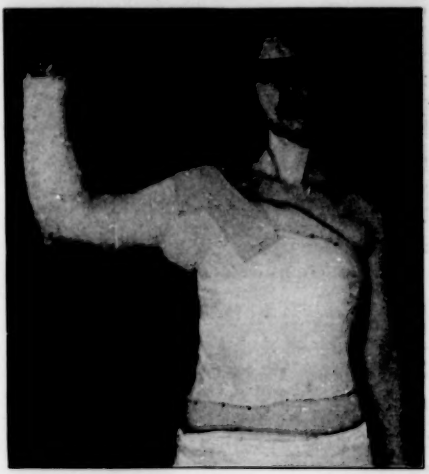

Fig. 1.—Position for relaxation of serratus magnus.

Eshner [2] suggested treatment by massage and electricity.

The four cases that we are reporting were not treated with any of the aforementioned medicinal measures, which undoubtedly would have been worth while adjuncts to the treatment instituted. These reported cases were treated by constant immobilization with the arm held so as to relax the serratus magnus muscle. In this position the scapula was held closely approximated to the thoracic wall and this position was maintained by a plaster shoulder spica cast (fig. 1). It was deemed advisable to use the plaster cast instead of a brace so as to have the assurance that the position

3. Thomson, Alexis, and Miles, Alexander: Manual of Surgery: Winged Scapula, ed. 4, New York, Oxford University Press, 2: 881, 1912.

4. Skillern, P. G., Jr.: Serratus Magnus Palsy with Proposal of a New Operation for Intractable Cases, Ann. Surg. 57: 909-915, 1913.

would be constantly maintained. It was found that a period of three months was necessary for the return of function to the nerve which was manifested by the ability of the muscle to maintain the scapula in its normal position. After the return of function, physical therapy aids materially in restoration of muscular strength and mobilization of the joints of the upper extremity. All four patients recovered complete function with this method of treatment.

Fig. 2 (case 1).—Original deformity in alar scapula.

REPORT OF CASES

CASE 1.—Mrs. K., aged 22, when seen, Nov. 12, 1923, stated that she injured the shoulder by pulling on straps during confinement three months previously. She was first conscious of the disability of the right shoulder after the child was born The disability consisted of a feeling of stiffness and soreness at the top and back of the right shoulder. At first the pain was intermittent but at this time it was constant.

On examination, while she was sitting, viewed from the back, the right shoulder blade rested three-fourths inch higher than the left and the inferior angle approached the vertebral spines. She indicated the top of the shoulder and sternum 2 inches below the manubrium and the lateral surface of the chest wall along the posterior border of the axilla as the tender places. She could not voluntarily raise the arm to the level of the shoulder and in an effort to do so the upper angle of the scapula was apparently elevated by the trapezius and the lower angle would swing far away from the ribs (fig. 2). Passively there was a normal range of motion at the shoulder joint.

November 15 a plaster shoulder spica was applied with the scapula in normal position.

Feb. 14, 1924, the cast on the arm was bivalved for active and passive exercises.

March 6 the remainder of the cast was removed. The patient now has normal range of motion, and although the arm tires more easily than the other the scapula remains in its normal position (fig. 3).

CASE 2.—Mrs. S., April 24, 1932, stated that she fell while scrubbing the floor eighteen months previously and injured her right shoulder. Immediately thereafter she noted pain and disability of the right shoulder and arm. The pain was described as occurring at the top of the shoulder, and it radiated along the lateral aspect of the right side of the chest. The disability consisted of weakness of the right arm and inability to execute what she considered the normal motions of her arm at the right shoulder.

On examination the right scapula had the characteristic wing-like projection. There was no obvious weakness of the trapezius, supraspinatus or rhomboids. The serratus magnus was atrophic.

May 12 a plaster shoulder spica was applied as described in case 1.

June 11 a felt pad was inserted between the scapula and the cast to assist in holding the scapula against the thorax.

August 13 the cast on the arm was bivalved and physical therapy was instituted.

September 10 the cast was removed. The scapula remained in its normal position.

CASE 3.—Mrs. P., aged 36, seen Jan. 27, 1936, stated that she fell out of a second story window the preceding New Year's eve, striking on her right shoulder. Immediately she noted pain in the right shoulder area and inability to use the right arm normally. Pain and disability were still present at this time.

On examination the essential changes were wing scapula on the right side with loss of function of the serratus magnus.

February 3 a plaster shoulder spica cast was applied, as described in case 1.

May 11 the cast was removed and physical therapy was instituted. At this time the scapula was in normal position and retained its normal position on all active motions of the right arm.

The patient when last seen, October 19, had normal range of motion at the right shoulder with complete recovery.

CASE 4.—Mrs. C., aged 63, when first seen, June 8, 1936, stated that she fell on the sidewalk April 1, 1936, injuring the right shoulder and sustaining a fracture of the pelvis. She had been at complete bed rest since the date of injury, but she stated that although she had no pain referable to the fracture of the pelvis she still had pain and disability of the right shoulder and arm.

Fig. 3 (case 1).—Scapula in normal position after three months treatment.

On examination the right shoulder and arm were essentially normal except for a definite wing scapula.

The right scapula was immobilized by a plaster shoulder spica which, when removed three months later, revealed a complete return of function of the serratus magnus muscle.

SUMMARY

1. Alar or winged scapula can result from nonlacerating injury to the long respiratory nerve of Bell.

2. Alar scapula following trauma is more probably caused by injury of the nerve of Bell than by laceration of the serratus magnus muscle.

3. The prognosis of alar scapula secondary to trauma to the nerve of Bell is better than a study of the literature would lead one to believe, provided the case is adequately treated.

4. Alar scapula is amenable to proper treatment, and good results can be obtained as late as eighteen months after onset of paralysis in traumatic cases.

5. Operative intervention has not been indicated in any of our cases.

6. In the four cases reported, all were treated by the proposed method and all made a complete recovery.

NOTE.—On Oct. 19, 1936, after this article was written, another case of alar scapula was observed by us. Although it is believed to have resulted from inflammatory factors associated with a myositis of the muscles of the neck, which had occurred one year before, we propose to treat this case by the method outlined.

The end result of this type of treatment for alar scapula secondary to inflammatory factors as manifested in this case may be reported at a later date.

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CULTURE OF HUMAN MARROW

DETAILS OF A SIMPLE METHOD

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In previous articles, two methods [1] for the culture of human marrow in bulk were described in a preliminary way and some of the problems that offered promise of solution by marrow culture were outlined. Details of the procedure and of the composition of the mediums were not given because little was then known about them. It is our purpose in this article to describe a technic of marrow culture, which has proved simple and entirely satisfactory for many types of investigation, in sufficient detail so that any one trained in bacteriologic, chemical and hematologic technic can use the method.

It early became evident that there was no such thing as one set of ideal conditions for marrow culture, because growth consists of three distinct phases. These phases are multiplication either by mitotic or by amitotic division, which corresponds to hyperplasia; increase in cell size, which corresponds to hypertrophy in the terminology of pathologists, and maturation, which corresponds to differentiation in the terminology of biologists. Conditions that favored the maximum rate of multiplication did not favor maturation, and conditions that favored the maximum rate of maturation did not favor multiplication. In normal marrow, all three processes take place simultaneously. In addition, there is a fourth process; namely, release of cells from the marrow into the blood stream. It is also evident that, in the marrow of healthy adults, these processes take place at such a rate that multiplication just balances the maturation and release of cells into the blood stream so that there is no significant increase or decrease in the total number or in the relative proportions of any cell type present.

The method to be described, while not producing the maximum rate of multiplication we have obtained or the maximum rate of maturation, does permit the two to occur simultaneously much as in normal marrow. Since it was necessary to determine the proper oxygen and carbon dioxide tension, the p_H, the volume of fluid per unit number of nucleated cells, the thickness of the layer of fluid over these cells, the optimal frequency of changing the mediums and the gas mixture, the optimal temperature, the speed of centrifugation, and many other factors as well as the composition of the medium, more than 400 experiments [2] have been performed in the development and investigation of this technic.

DESCRIPTION OF THE METHOD

Preparation.—All transfers of nutrient fluid and marrow are made with sterile syringes and needles through rubber vaccine vial caps, the caps being sterilized each time with 70 per cent ethyl alcohol. Vaccine vials of pyrex or other lead free, insoluble glass are sterilized by dry heat at 150 C. for one hour and capped with rubber caps sterilized by autoclaving or boiling. The single cap type of vaccine vial proved superior to the double cap type at first used. An abundant supply of 50, 30, 20, 10 and 1 cc. syringes should be kept sterile by wrapping in paper and sterilizing in a dry sterilizer at 150 C. for one hour. The 20-22 gage Luer three-fourths inch needles and 19 gage 4 inch needles are dry sterilized in indented test tubes plugged with cotton.

Prepare citrated balanced salt solution and balanced salt solution as given in the table, using water freshly distilled from pyrex glass, and sterilize the solutions immediately after the ingredients are dissolved, either in the autoclave or by passing through a Seitz [3] or Chamberlain-Pasteur filter and bring back to volume with sterile water. Store in 50 cc. vaccine vials.

Accumulate a supply of sterile cord serum by aspiration of blood with a sterile 50 cc. syringe and needle from a vein in the fetal side of the human placenta as soon as possible after the cord has been clamped. Introduce this blood into vaccine vials and, after clotting has occurred, centrifugate, withdraw the supernatant serum with a sterile long needle and 50 cc. syringe and, after recentrifugation, store in another 30 cc. pyrex vaccine vial in the icebox, labeled with the date and patient's name or case number. If cord plasma is desired, introduce an equal volume of cord blood into a 50 cc. vial containing 25 cc. of citrated balanced salt solution, centrifugate, draw off the supernatant plasma, recentrifugate, and store in separate vials. This plasma-citrated balanced salt mixture may be used as the medium directly and it is necessary if cells of the thrombocyte series from the megalokaryoblast to the platelet are to be grown. For all other cells, serum seems to serve equally well and has usually been employed.

It will be noted that the composition of the medium is the same as that found by the Geys [4] to be ideal for the growth of human tumors; but we demonstrated the advantages of this medium for marrow culture by comparison of the balanced salt solution with Tyrode's solution and various other salt mixtures under con-

Aided by a grant from Eli Lilly & Co., Indianapolis.
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1. Osgood, E. E., and Muscovitz, A. N.: Culture of Human Marrow: Preliminary Report, J. A. M. A. **106**: 1888-1890 (May 30) 1936. Osgood, E. E., and Brownlee, Inez E.: Culture of Human Marrow: A Simple Method for Multiple Culture, ibid. **107**: 123 (July 11) 1936.

2. Dr. W. M. Fowler of Iowa City assisted in the experiments on oxygen and carbon dioxide tension. Dr. M. F. Gourley, Martha Rohner, J. C. Kennedy, R. W. Pugmire and A. N. Muscovitz assisted in the experiments on the composition of the medium.

3. A filter flask, designed by E. S. West and E. E. Osgood, to which a glass tube is fused to fit a vaccine vial cap, is a convenience in the transfer of mediums to vials without contamination.

4. Gey, G. O., and Gey, Margaret K.: The Maintenance of Human Normal Cells and Tumor Cells in Continuous Culture: I. Preliminary Report: Cultivation of Mesoblastic Tumors and Normal Tissue and Notes on Methods of Cultivation, Am. J. Cancer **27**: 45-76 (May) 1936.

trolled conditions and by comparison of different concentrations of cord serum with each other, with serum from the subject who donated the marrow, with serum from other healthy adults, and with serum of animals. Any concentration between 10 and 50 per cent of any type of serum tried would support growth but 35 (25-40) per cent human cord serum gave the best growth.

Technic of Sternal Puncture.[5]—Perform the sternal puncture with the patient lying on the back with the shoulders on a firm pillow and the head dropped back. Prepare the area of the sternomanubrial junction with iodine and alcohol and drape the face and shoulders with sterile towels, leaving exposed a triangle about 1 inch on a side over the middle of the sternomanubrial joint. Wearing sterile gloves and using aseptic technic, infiltrate the skin, subcutaneous tissue and periosteum with about 4 cc. of 1 per cent procaine hydrochloride. The landmarks are the jugular notch for the midline of the sternum and the ridge opposite the second ribs for the sternomanubrial joint. After allowing about three minutes for the anesthetic to take effect, test the anesthesia with the hypodermic needle used for infiltration and, if complete, introduce the sternal puncture needle (16 gage spinal puncture needle cut off to 3.5 cm. and rebeveled) vertically into the midline of the joint. Then tilt the needle to an angle of from 30 to 60 degrees with the plane of the sternum and, standing at the patient's head, introduce it into the marrow cavity by rotating the needle. Apply very little pressure. When the needle has entered the bone, as judged by its rigid fixation, remove the stilet and attach an absolutely tight 10 cc. syringe. This syringe should previously be tested by drawing the plunger out to the 2 cc. mark and then, with the tip covered by the finger, draw the plunger out to the 10 cc. mark, holding it there for a minute or longer. When released, the plunger should go back to the 2 cc. mark, indicating no leakage of air. With the 10 cc. syringe, aspirate from 1 to 10 cc. of marrow, loosen the syringe from the sternal needle, attach a 20 gage, three-fourths inch needle and introduce the marrow into a 50 cc. vaccine vial containing 25 cc. of sterile citrated balanced salt solution. Release the plunger to allow the displaced air to escape, remove the needle and have an assistant shake the vial vigorously. Replace the stilet in the sternal puncture needle, withdraw the needle quickly and place a drop of collodion over the point of puncture. In about 400 sternal punctures by this method there have been no complications, and in the last 300 punctures no failure to obtain marrow. The procedure is so simple and painless that many subjects have volunteered three or four times.

Salt Solutions

	Citrated Balanced Salt Solution, Gm. per Liter	Balanced Salt Solution, Gm. per Liter
$Na_3C_6H_5O_7.2H_2O$	5.0	....
NaCl	6.8	8.0
KCl	0.37	0.37
$NaHCO_3$	0.23	0.23
$CaCl_2$ (anhydrous)	0.17	0.17
$MgCl_2.6H_2O$	0.21	0.21
$Na_2HPO_4.2H_2O$	0.15	0.15
KH_2PO_4	0.03	0.03
$MgSO_4.7H_2O$	0.07	0.07
Dextrose *	1.0	1.0

* If the solution is to be sterilized by autoclaving, dissolve dextrose separately and mix with the rest of the solution after autoclaving and before dilution to final volume.

Concentration of Nucleated Cells.—Centrifugate the vial containing the marrow at 1,500 revolutions per minute for fifteen minutes. Withdraw an amount of the supernatant liquid equal to the original volume of citrated balanced salt solution and discard. Mix the cells with the remaining liquid and transfer to a volume index tube[6] capped with a rubber vaccine vial cap or rubber dam. Centrifugate this at 1,500 revolutions per minute for thirty minutes, withdraw and discard the supernatant fluid, withdraw all the white cell layer and a little of the red cell layer and transfer to a 30 cc. pyrex vaccine vial containing 8 cc. of balanced salt solution. Mix well. This procedure concentrates the nucleated cells of the marrow and gets rid of most of the non-nucleated erythrocytes, which have a tendency to inhibit growth.

Dilution and Addition of Mediums.—Mix thoroughly, withdraw 0.5 cc. and do a total nucleated cell count according to the usual technic[7] for white cell counts. Dilute the remaining marrow in the vial with the amount of balanced salt solution and cord serum calculated to give a total nucleated count between 1,000 and 2,000 per cubic millimeter and a final concentration of cord serum equal to 35 per cent by volume. Mix thoroughly and subdivide into a series of 30 cc. one-stopper vaccine vials, placing about 12 (from 10 to 15) cc. in each vial. To each of these, leaving one for a control, add a different quantity of a sterile solution, in balanced salt solution, of any substance to be tested,[8] adding enough balanced salt solution to make the final volumes the same.

Control Counts.—Mix each vial thoroughly, remove 1 cc. for control counts, and put the vials into a 37.5 C. incubator or water bath. On the 1 cc. of well mixed culture removed, do a total nucleated and red cell count, and then centrifugate in a corked small test tube (8 by 50 mm.) supported in cotton in a 15 cc. centrifuge tube. Withdraw the supernatant liquid, leaving only a volume equal to the volume of packed cells, mix thoroughly and make smears, holding the smearing slide at an angle of from 70 to 80 degrees to secure an even distribution, for Wright's and peroxidase stains, make supravital preparations, reticulocyte counts or add vaccine and wait fifteen minutes, remix and make smears to demonstrate phagocytosis. Determinations of p_H and chemical and serologic tests may be done on the supernatant fluid. At any interval desired, remix the cultures thoroughly, withdraw 1 cc. portions and examine in a similar manner. We have usually examined our cultures every twenty-four hours.

Changing the Mediums and Gas Mixture.—Every forty-eight hours, change the mediums by centrifugating the vials containing the cultures at 1,500 revolutions per minute for fifteen minutes, withdrawing the supernatant fluid and replacing it with a volume of 35 per cent cord serum in balanced salt solution equal to the volume of fluid withdrawn. Change the air in the vials about every four days by aspirating filtered air into a 50 cc. syringe and with an extra needle run through the cap for exit of the gas, forcing the fresh air into the vials. The device for obtaining filtered air consists

5. Young, R. H., and Osgood, E. E.: Sternal Marrow Aspirated During Life: Cytology in Health and in Disease, Arch. Int. Med. 55: 186-203 (Feb.) 1935. Osgood, E. E.: A Textbook of Laboratory Diagnosis, ed. 2, Philadelphia, P. Blakiston's Son & Co., 1935, p. 434.

6. Osgood, E. E.: A Textbook of Laboratory Diagnosis, ed. 2, p. 419.
7. Osgood, E. E.: A Textbook of Laboratory Diagnosis, ed. 2, p. 409.
8. The concentration of this solution should be about 100 times the final concentration desired, so that only from 0.1 to 1 cc. need be added. A 1 cc. tuberculin syringe is used for accurately measuring these quantities.

of a 2 to 4 inch length of glass tubing of suitable size to fit a vaccine vial cap, stoppered at one end with such a cap, filled with nonabsorbent cotton and autoclaved. To obtain the filtered air, puncture the sterilized cap with a sterile needle and aspirate air through the cotton.

Conditions to Be Controlled.—If all vials in one set of experiments are treated exactly alike, that is, taken out of the incubator at the same time, centrifugated at the same time, and so on, one has a perfect control for the variable purposely introduced in the experiment. The p_H of the balanced salt solution should be between 7.4 and 7.8 and the p_H of the supernatant liquid removed at the time of changing mediums should not have fallen below 7.2

Determining the Absolute Number of Each Cell Type Present.—By multiplying the percentage of a given cell type, as determined by a differential count of 500 nucleated cells,[9] by the total nucleated cell count, the absolute number of that cell type in 1 c.mm. is determined. Multiplying this number by the total number of cubic millimeters in the vial gives the actual number of cells of each type present in the culture at any time.

The easiest way of finding mitotic figures[9] is to cover the stained smear with oil and make a survey of the slide, using an 8 mm. objective and 10 × eyepiece. When located by this method, they can readily be found under the oil immersion lens if one has previously determined the proper part of the 8 mm. field in which to place them. Locate a characteristic cell under the oil immersion objective, switch to the 8 mm. lens and note in what part of the field the cell lies. Always move a cell to this area before shifting to the oil immersion lens.

COMMENT

Among the noteworthy observations in the series of experiments on which this technic is based was the wide variation in conditions which marrow cells would tolerate. They survived any oxygen tension between 3 and 40 per cent and any carbon dioxide tension from that of air to 10 per cent. The oxygen and carbon dioxide tensions of air were fully as satisfactory as any other tested and more convenient to use. Cultures survived any p_H between 7 and 8 but seemed to do best at from 7.4 to 7.8. They would tolerate any osmotic pressure between that of 0.7 and of 1 per cent sodium chloride but did best in an isotonic or slightly hypotonic medium. They survived any temperature between just above freezing and 41 C., but the rate of multiplication and maturation is slowed down at the lower temperatures. They survive at room temperature for two weeks without a change of mediums. This permits shipping cultures, if protected from freezing, to any point in the United States. A surface to grow on is not essential, as has been thought to be the case for other tissues. Cultures have thrived at incubator temperature with continuous agitation for many days but there seemed to be no advantage to this.

Cultures appear to do quite well with a nucleated cell count as high as 14,000 per cubic millimeter but unless the medium is changed more often than once in forty-eight hours the counts will fall unless the total nucleated cell count is under 2,000 per cubic millimeter. It seems at first remarkable that the cells withstand centrifugation as well as they do, but they probably withstand more trauma in the circulating blood. It is possible to damage them by high speed, prolonged centrifugation, but even very frequent centrifugation at the speed recommended does not seem to damage them. It is further remarkable that no more débris of dead cells accumulates because, as will be shown,[10] the duration of life of the mature neutrophil lobocyte (polymorphonuclear) is only about sixty to seventy hours, so that large numbers of them must die during the period of survival of these cultures. The débris is, however, phagocytized by the living cells and apparently reutilized. Dead and disintegrated red cells are similarly phagocytized.

The cells will also tolerate very wide variations in the composition of the medium. Since serum or plasma is one of the satisfactory ingredients, it is possible to study the differences in the effect of serum or plasma from any disease on the growth of marrow from any disease. We have already determined that the serum from untreated pernicious anemia patients lacks the factor necessary for reversion to the normal of the pernicious anemia marrow picture. This factor is present in normal serum, in serum from other diseases, and in potent preparations containing the antipernicious anemia principle. Therefore it should be possible to develop a quantitative test for antipernicious anemia principle as soon as a technic is developed of growing marrow in unlimited quantities and maintaining it in a state of deficiency of antipernicious anemia principle. No evidence has been obtained that serum of a person of the subject's blood group is any better than serum from a person of another group and the subject's own serum seemed inferior to cord serum. One would think that a medium consisting entirely of the subject's own serum or plasma would be ideal, but this results in rapid maturation. Since multiplication does not occur except in the lymphocyte and plasmacyte series, after maturation proceeds beyond a certain stage most of the cells in the cultures soon die. Lymphocytes even from blood cultures multiply indefinitely by amitotic division, but the normal lymphocyte has never been seen in mitosis.

Many ingredients have been tested for artificial or synthetic medium in a preliminary way. Some concentration of each of the following definitely seemed to favor growth: egg white, cerebrospinal fluid, cystein, peptone, concentrations of dextrose up to 0.5 per cent, thyroxine, vitamin C, hemin, pentose nucleotide, antipernicious anemia principle, and peptic digests of fibrin or egg white. Some concentrations of the following substances were found which seemed to favor growth and which certainly had no deleterious effect on the cultures: ferrous iron, copper, beef embryonic extract, chick embryonic extract, vitamins A, B and D, various amino acids and combinations of amino acids, insulin, theelin, glutathione, and anterior pituitary growth hormone. In all concentrations tried which had a detectable influence, the following ingredients had an apparently deleterious effect on the cultures: isotonic sea water, egg yolk, pig embryonic extract, amniotic fluid and tryptic digests. The most striking observation was the marked increase in mitosis (from forty to sixty times the number in the original marrow) produced by some as yet unidentified constituent of egg white, while chick embryonic extract, which has been so widely used in previous tissue culture

9. The cells are pictured in color and the mode of classification, identification and nomenclature used are given in Osgood, E. E., and Ashworth, Clarice: Atlas of Hematology, San Francisco, J. W. Stacey, Inc., 1937. The cells capable of mitotic and amitotic division are given in this atlas and in Osgood, E. E.: The Histogenesis, Classification and Identification of the Cells of the Blood and Marrow, Based on Cultures and Hematologic Studies of Human Marrow and Blood, to be presented before the American Society of Clinical Pathologists, Philadelphia, June 2-5, 1937, and to be published in the American Journal of Clinical Pathology.

10. Osgood, E. E., and Brownlee, Inez: The Length of Life of the Neutrophils, Eosinophils and Basophils of Normal Blood as Determined by Comparative Cultures of Blood and Sternal Marrow from Healthy Persons, to be read before the Section on Pathology and Physiology at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9.

work, was relatively much less effective. None of the statements made in this paragraph should be regarded as final, since they are based on relatively few experiments. A large series of carefully controlled experiments covering the whole range of variations in concentration of each ingredient from definitely inactive to definitely harmful will be necessary before its optimal concentration, mode of action and value as an ingredient of synthetic mediums can be reported. Probably a separate publication on each ingredient will be necessary. We have used the synthetic mediums of Baker [11] as our point of departure but many modifications have proved desirable and a great deal of work must yet be done before the ideal concentration of all ingredients will be known. These tentative results are reported because they may aid others who wish to work with the method.

Note that the method described employs no apparatus not present in a well equipped laboratory and no technic not known to a well trained technician and that it is suitable for quantitative experiments. We have cultured blood, spleen and lymph nodes by this method as well as marrow. It could undoubtedly be used for many other tissues. We have had living motile marrow cells at fifty days after removal from the human body and as long as six weeks after the death of the patient from whom the marrow was obtained. Undoubtedly cultures could be retained much longer if portions were not removed at such frequent intervals, thus eventually depleting the supply.

The methods and results to date will be shown in the Scientific Exhibit of the American Medical Association at Atlantic City, June 7-11.

Clinical Notes, Suggestions and New Instruments

A NEW RECORD IN LONGEVITY AFTER CORONARY THROMBOSIS

PAUL D. WHITE, M.D., BOSTON

S. R., a clergyman, died of congestive heart failure, Aug. 2, 1936, at the age of 73, in the twenty-fifth year after his first attack of coronary thrombosis. He was of a long-lived family, doubtless an important factor in the present consideration. He himself had always been in good health as a boy and young man, a strenuous worker and considerably overweight for many years. He had never had syphilis.

In May 1927 the patient consulted me for advice relative to a severe illness which he had suffered during evangelical meetings on Cape Cod two weeks before. While preaching, he had been suddenly seized by very severe epigastric and substernal oppression radiating strongly and equally to the two wrists, causing him to faint and lasting several hours, until relieved by two hypodermic injections of morphine. He had remained in bed one week, feeling well, except for some weakness and a short period of fever (up to 102 F.), which subsided after two or three days. On getting up and about he had noticed a little shortness of breath on exertion, but he had had no more pain.

It was then, in May 1927, at the time of my history taking in the case, that I discovered the remarkable fact that fifteen years earlier, in 1912, at the age of 48, he had the first of a series of four attacks, which were exactly alike except for severity, and which he and others had diagnosed "acute indigestion." The second attack occurred in 1915 at the age of 51, the third in 1923 at the age of 59, and the fourth, which was the most severe of all, was the one which happened in 1927 at the age of 63, two weeks prior to his first visit to me.

On physical examination in May 1927 the patient was heavy and had normal breathing, fair color, normal reflexes, slight cardiac enlargement with diminished first sound at the apex but no murmurs and no evidence of congestive failure in the veins of the neck, the lungs, the liver, or the extremities. His pulse was regular at 78 and his blood pressure was 130 systolic and 80 diastolic. Electrocardiography showed normal rhythm, low voltage of QRS waves, inverted T waves in lead 1 and flat T waves in lead 2. He was put to bed for a few more weeks and advised to lose weight. Following these measures he improved rapidly and continued in good health for two years, at the end of which time paroxysmal angina pectoris developed for the first time; this was in 1929.

In 1931 he suffered his first attack of paroxysmal dyspnea with cardiac asthma; on digitalis he again improved greatly and his health was good during the next two years. He continued to preach and to do other ministerial work, but no longer under pressure. The winter of 1933-1934 he spent in Florida and returned north in fairly good condition, but at this time, at the age of 71, he retired from his work. He had reduced his weight in the course of several years from 222 to 178 pounds (101 Kg. to 81 Kg.). In May 1934 there occurred a paroxysm of tachycardia lasting three hours, but there were no more attacks of the sort thereafter. The next fall and winter he remained in good health but lived a very quiet life.

During the winter of 1935-1936 he was miserable in Florida, with much orthopnea at night. In May 1936 at the time of examination he looked very thin, his weight having fallen to 156½ pounds (71 Kg.). His heart was only moderately enlarged (by orthodiagram the transverse diameter of the heart was 13.9 cm. and the internal diameter of the thorax was 25.6 cm.), the sounds were fairly good, there were no murmurs, and there was no evidence of congestive failure. The blood pressure was 110 systolic and 70 diastolic. The electrocardiogram showed frequent ventricular premature beats, a heart rate of 80, sagging ST intervals in lead 1, moderate left axis deviation, and upright T waves in lead 4. I examined the patient for the last time on June 2 and found him improved; he had regained a few pounds and showed no congestion. He was on a daily ration of 1½ grains (0.1 Gm.) of digitalis. In Maine, where he spent his summers, he began about the middle of June to have increasing shortness of breath, especially at night, and he frequently required morphine for relief. The pulmonary congestion increased in degree up to the time of his death, August 2.

AUTOPSY

At autopsy the heart weighed 590 Gm. and there was moderate hypertrophy and considerable dilatation of the left ventricle, the wall of which showed extensive fibrotic changes with scarring in several different areas, particularly at the base of the left ventricle just under the endocardium and extending as far as the anterior papillary muscle, which was also considerably involved, and at the apex of the left ventricle, including also the anterior part of the interventricular septum. Over these areas, and in scattered points between, there was marked thickening with whitening of the endocardium and thinning of the ventricular wall. The greatest thinning was at the base posteriorly, where the wall was less than 5 mm. thick and showed slight aneurysmal outpouching. There was no intracardiac thrombus or evidence of pericarditis.

The right ventricle was hypertrophied to about twice its normal size, doubtless as the result of the several years of periodic insufficiency of the left ventricle with increase of pulmonary blood pressure. The muscle seemed in good condition macroscopically, and there was no evidence of fibrosis or scarring of the right ventricle. The auricles and valves were normal.

The coronary arteries were seriously affected and there was an astonishingly small blood supply possible through them. The right coronary artery, which was of unusually large size, had a very narrow lumen, nearly to the point of total occlusion in three places, two of which had apparently undergone recanalization. The right coronary artery was large and long and apparently normally supplied the posterior part of both ventricles. The left coronary artery was smaller than normal;

11. Baker, Lillian E.: Artificial Media for the Cultivation of Fibroblasts, Epithelial Cells and Monocytes, Science 83:605-606 (June 19) 1936.

the circumflex branch was completely occluded by old calcification 1.5 cm. from its mouth, and the anterior descending branch showed considerable narrowing of the lumen. The coronary vessels throughout the heart felt like pipe stems. No fresh thrombus was found in them. The ascending aorta was smooth and the mouths of the coronary arteries were patent.

COMMENT

This case with postmortem proof of myocardial infarction establishes a new record in longevity after coronary thrombosis. The longest survival previously recorded was that of a patient who died in the eighteenth year after the acute infarction;[1] the patient who is the subject of the present report lived into his twenty-fifth year after his first heart attack and survived three other attacks of coronary thrombosis by twenty-one, thirteen and nine years respectively. It is likely that this record was made possible by the fact that not one of the infarcts was very large, that he belonged to a long-lived family, and that he reacted very well to treatment, consisting of digitalis and rest, when his myocardium did begin to fail. It seems quite certain that there are numerous other cases of very long survival but that they have not yet been confirmed post mortem.

SUMMARY

A new record in longevity after coronary thrombosis has been discovered in a man whose first myocardial infarction occurred at the age of 48, his second at 51, his third at 59 and his fourth at 63. He died of congestive heart failure at the age of 73, in the twenty-fifth year after his first coronary thrombosis. Postmortem examination revealed multiple areas of infarction in the left ventricle. In the previous record case survival occurred into the eighteenth year after one attack of coronary thrombosis.

Massachusetts General Hospital.

AN UNUSUAL COMPLICATION IN POTT'S DISEASE

ROBERT O. RITTER, M.D., CHICAGO

C. H., a boy, aged 11 years, first came under observation in the outpatient orthopedic department of St. Luke's Hospital in 1925. He had a marked kyphos, the result of tuberculosis of the sixth, seventh and eighth dorsal vertebrae. After several months' observation, the disease still being active, a spine fusion operation was performed by the Hibbs method March 22, 1926. The first to the eleventh dorsal vertebrae, inclusive, were fused. There was nothing unusual about the convalescence, and after four months the patient left the hospital wearing a back brace with head support. Six weeks later he reentered the hospital because of inability to control the legs. He was immobilized for three months on a Bradford frame without any improvement. November 23 the site of the original operation was explored with the expectation of finding a lack of fusion. On the contrary, there was a complete ankylosis. The cord was then exposed over the deformity by removing a wide strip through the middle of the fused area. A solid bony fusion remained on either side. An extradural abscess was found at the level of the sixth and seventh dorsal vertebrae. The dura was not opened. The wound healed readily but the spasticity did not improve. In fact it increased, and the patient had all the neurologic signs of severe cord pressure. The thighs were flexed at right angles to the body and the legs at right angles to the thighs. No amount of effort could overcome these contractures.

Kyphos resulting from tuberculosis of the spine.

It was not until August 1927 that the parents consented to another operation. The cord was exposed through the site of the former decompression. No extradural abscess was found, but the dura was tightly stretched over the sharp kyphos and its anteroposterior diameter was so narrowed that the cord was flattened like a ribbon. The dura was incised longitudinally. The cord, freed from pressure, bulged up through the opened dura. After all pressure was released, the wound was closed. Two weeks after this operation the patient could voluntarily move the toes of the right foot. Muscle control gradually returned and all spasticity disappeared. In three months he was up, pushing a wheelchair about the ward. He left the hospital Dec. 23, 1927, with full return of muscle control and no signs of cord pressure.

The boy then became a house-to-house canvasser, walking and climbing steps everywhere he went until May 2, 1931. On this date he fell down a flight of slippery steps, striking the kyphos at the edge of a step. He experienced a sudden severe pain, with an immediate loss of all muscle power and pain sense below the site of injury. He entered St. Luke's and the cord was exposed again by operation. It was found much swollen and congested over the kyphos. Longitudinal incisions were made into this area and the cord was found to be completely severed. The wound was closed and healing occurred promptly. However, he developed pressure sores over all bony prominences, and a severe cystitis. July 3 he was taken home, where he died a short time later.

122 South Michigan Avenue.

1. White, P. D.: Longevity After Coronary Thrombosis, J. A. M. A. 100: 233 (Jan. 29) 1933.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

FASTEX SELF-ADHERING GAUZE NOT ACCEPTABLE

Manufacturer: The Fastex Corporation, 730 McKnight Building, Minneapolis.

Fastex is recommended by the manufacturer for bandaging wounds, sprains, strains and other injuries when protection is needed. The gauze is self adhering, requiring no adhesive tape, no pins, no strings or tying to make it stay. According to the manufacturer it is not affected by water and does not stick to the hair or skin. It is claimed to be porous, permitting the passage of air to the wound or injury. It is indicated, according to the manufacturer, for first aid, minor emergency use and certain types of operative work in which a self-adhering gauze would prove more advisable; viz., an idiosyncrasy to adhesive tape or a tape rash.

In the production of Fastex Self-Adhering Gauze, the firm claims that bleached, sterile gauze (44 by 40) is used. The gauze is coated with a neutral rubber composition containing resins. During the process the coated material is immersed in a solution containing metaphen and eosin and further subjected to a temperature of 212 F. The firm claims that this resultant gauze is sterile and that it may be placed on an open wound in the same manner as ordinary sterile gauze but has the advantage of being self adhesive and as such more convenient to use. It is recommended by the manufacturer in instances in which physicians prescribe adhesive tape to overcome thumb sucking in babies and children.

The firm was requested to supply information concerning the possible contamination of the latex during the process of manufacture, the length of time the latex is held at 212 F., and whether or not the box in which the roll is placed was sterilized. The firm replied that the latex is held at 212 F. for approximately twelve minutes and that this heat treatment is primarily a step in the manufacturing process and only incidentally considered a sterilization measure. The firm fur-

ther stated: "Both the heat degree and the length of time in which material is subjected to that probably is not to be considered sufficient. The latex, during the manufacturing process, is not subjected to contamination except as it is momentarily exposed to the air in passing through the process."

The manufacturer claims that its products are subjected to standard autoclave treatment after being wrapped. Pressure cooker equipment, which gives bone-dry sterilization under 20 pounds of pressure for thirty minutes, is employed.

The Fastex Self-Adhering Gauze, as supplied to the trade, was referred to a clinic acceptable to the Council for investigation and report. The Council's investigator employed the methods and technic customarily used in bacteriologic examinations. He reported that bacterial growth occurred in the majority of tubes inoculated with the gauze under consideration, and that at least four different species of bacteria were encountered. No identification was attempted, but the predominant species appeared to be B. subtilis.

Control tubes opened in the same manner as the test tubes, but not inoculated, showed no growth.

A control series of tubes in which autoclaved gauze was cultured showed no growth. Subsequent growth after inoculation of three species into these tubes indicates that the absence of growth was not due to a growth-inhibitory substance which might have dissolved out of the gauze.

The Council's investigator concluded that bacteria were present in the gauze as furnished him.

The Council on Physical Therapy voted that Fastex Self-Adhering Gauze be declared not acceptable for inclusion in its list of accepted devices because the product was not sterile as claimed but was found to be contaminated with bacteria.

HANOVIA HOME MODEL ALPINE SUNLAMP (Models S-309 and E-302) NOT ACCEPTABLE

Manufacturer: Hanovia Chemical and Manufacturing Company, Newark, N. J.

The Hanovia Alpine Sunlamp (Models S-309 for alternating current and E-302 for direct current) is recommended by the firm, for home use. It is an improved model of the Hanovia Home Model Alpine Sunlamp, which was accepted by the Council (THE JOURNAL, Oct. 20, 1934, p. 1229). Solid activated electrodes are used now because, according to the company, the danger of breakage in shipment is reduced, and the lamp lights on turning the switch without the necessity of tilting the burner. Otherwise the firm claims the characteristics of Models S-309 and E-302 are the same as the previously accepted model.

The lamp gives the typical high pressure hot quartz mercury arc spectrum, and the spectral energy distribution is almost identical with that of all other high pressure hot quartz mercury arc lamps.

The intensity of the lamp is from 180 to 200 mw/cm² for radiations 3,130 angstroms and shorter, and from 320 to 360 mw/cm² for the total ultraviolet, when measured directly opposite the burner with the burner mounted in its reflector and 30 inches distant. Under the same conditions at 36 inches, the intensity is from 125 to 140 mw/cm² and from 250 to 270 mw/cm² respectively.

At 40 inches the intensity of radiations 3,130 angstroms and shorter is 90 mw/cm², being about the same as the intensity for summer sunshine at Washington, D. C., for the sun's radiations 3,130 and shorter.

The life of a burner is from 1,500 to 2,000 hours, the depreciation being mainly the blackening of the walls of the burner.

It is to be remembered that the Council accepts for home use only lamps that emit practically no ultraviolet radiation of wavelengths shorter than 2,800 angstrom units. The Home Model Alpine Sun Lamp (Models S-309 and E-302) emits such radiations, but this might be eliminated if a corex window was used.

With regard to the time of exposure to produce an erythema, the firm states that for the average individual a first exposure should be made at 30 inches and for not longer than four minutes on any one body surface.

The advertising matter was examined and was found to be unacceptable. The leaflet "Announcing the New Hanovia Alpine Sun Lamp for Your Home" contains, among others, statements such as: ". . . will help you keep fit and build your resistance against disease"; "Its beneficial ultraviolet rays will not alone increase your energy but they quiet your nerves, stimulate your appetite, and induce sound and restful sleep"; ". . . whose cool, beneficial rays are the most effective means for maintaining the health of children and building up their resistance to diseases and ailments"; "The wavelength distribution of the rays emitted from this new burner resembles very closely that of the sunshine high up in the mountains at the elevations where the most beneficial ultraviolet rays have not yet been filtered out by dust, smoke or other absorbent elements. Sunshine of such beneficial quality can never be enjoyed at sea level or below about 5,000 feet, not even on very clear days with bright sunshine"; "Brings the mountain sun into your home."

As the Hanovia Chemical and Manufacturing Company has not submitted critical evidence to substantiate the aforementioned claims, the Council declared the lamp nonacceptable.

When the foregoing report was submitted to the Hanovia Chemical and Manufacturing Company, a suggestion was made that the lamp be equipped with a filter to remove the ultraviolet radiation of wavelengths shorter than 2,800 angstroms. In its reply the company rejected the suggestion to so equip the sunlamp, giving as its reason that such filters do not exhibit a sharp cut-off at 2,800 angstroms, transmitting all longer rays and absorbing all shorter rays. Instead the firm states that filters do absorb an important part of the rays of 2,900 and 3,000 angstroms.

The firm further stated that it most emphatically denied on a basis of the present day evidence that ultraviolet in such quantities as are likely to be used in the home might cause deleterious changes in the skin and that such evidence existing refers to cases exposed to natural sunlight. Excerpts from articles written by several specialists in ultraviolet therapy were cited to support the firm's contention. The purpose of these excerpts, according to the firm, emphasize the point that "ultraviolet will help to maintain health as near to par as other circumstances permit."

The Council observed that the excerpts were taken from articles prepared by specialists on the subject of ultraviolet radiation. Articles from which excerpts are taken may have an entirely different meaning when considered as a whole, but an excerpt viewed along with or in the presence of thoughts of another nature may be misleading.

The objection raised by the firm to compliance with the requirements to furnish a Corex D filter did not seem insurmountable to the Council. A single thickness of Corex D glass transmits 10 per cent ultraviolet radiation at 2,804 angstroms, 50 per cent at 2,967 angstroms and 75 per cent at 3,132 angstroms. This is the spectral region which has been recognized as efficacious for prophylaxis in rickets. According to the records submitted by the firm, at 30 inches the sunlamp in question produces an erythema in about four minutes. This time is entirely too short for sunlamps used in the home without the supervision of a physician. The Council pointed out, however, that the lamp met the specifications of the Council for acceptance, provided it was used under the supervision of a physician.

In the opinion of the Council and its consultants, the information presented by the firm was insufficiently conclusive to warrant a change in action.

In view of the foregoing, the Council voted to reaffirm its stand that the Hanovia Home Model Alpine Sunlamp (Models S-309 and E-302), be declared unacceptable for inclusion in its list of accepted devices because: (1) when the lamp is used without the Corex D window the ultraviolet of wavelengths shorter than 2,800 angstroms is greatly in excess of the value acceptable to the Council for sunlamps recommended for home use, and (2) because the lamp is recommended for use without the supervision of a physician.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

PAUL NICHOLAS LEECH, Secretary.

"CICAL BASE 125" NOT ACCEPTABLE FOR N. N. R.

Under the name "Cical Base 125," Chemical Industries of California requested the Council's consideration of an ointment base stated to be composed of stearic acid, spermaceti, white wax, terpineol, an especially processed stable animal oil, distilled water, triethanolamine and sodium benzoate. The firm claims the use of this ointment base to be "of value in dry skin, senile skin, sunburn, windburn and ichthoid conditions." In addition it is proposed as an ointment base for prescriptions. As such it is claimed to be superior to those in common use because diffusible in the presence of serous and sanguineous exudates.

At the time of presentation of the product, the firm was asked for information (1) as to the purity of the triethanolamine, (2) as to the nature of the "especially processed, stable animal oil" and (3) as to the justification for the use of a proprietary noninformative name involving the use of numbers. The firm replied that the triethanolamine used consists of approximately 82½ per cent triethanolamine, 15 per cent diethanolamine and 2½ per cent monoethanolamine. Concerning the oil used in the product, the firm states "There are patents pending on the especially processed stable animal oil used in CICAL BASE 125. It will depend entirely on the type of patents granted whether we shall be able to divulge the formula . . ." The firm indicated that, if the patents were issued, the formula would be supplied to dermatologists already using the product so that they may be able to report on its clinical use. At present, therefore, the product is essentially a secret one. The firm has not supplied adequate methods for determination of the identity and purity of the product. In this connection the firm states that the constituents of the various ingredients are related and chiefly inert and fatty in nature, making accurate identification and assay of the stearic acid, spermaceti, white wax, terpineol and the "stable animal oil" impossible because on mixing, the identifying characteristics are lost. The Council could not, of course, accept a product on the basis of the inadequate statement of identity and composition now available.

Concerning the name "Cical Base 125" the firm stated that it is willing to make necessary changes in case the Council finds the name in conflict with its rule. The firm proposed exemption of the product from the Council's rule concerning the use of numbers and letters in names on the ground that this was a special case in which the use of a numeral or letter seems desirable because further improvement of the product was anticipated. As alternative for a numbered series, the firm proposed the use of such names as Cical Base Hydrous, Cical Base Anhydrous, Cical Base Heavy, Cical Base Medium and Cical Base Light. The name as it stands is in obvious conflict with the Council's rules. In the first place there is the objectionable secrecy in connection with the "processed stable animal oil." The name "Cical" is essentially meaningless. Sufficient proof of the originality of the product has not been furnished to justify exemption of the product from the rule concerning the use of numbers in names. The alternative names proposed by the firm are not considered satisfactory.

The Council considered advertising submitted by the firm consisting of a leaflet entitled "Cical Base 125-Diffusible in Exudates," a booklet "Chemical Industries of California-Cical," a price list, on the back of which appears the names of various Cical products with a statement of indications for each, and a printed sheet detailing four case histories.

In the advertising the following list of Cical products are mentioned: Cical Base 125; Salbencal (Whitfield); Salbencal Half Strength; Carsincal; Sulpercal; Sulpercal Half Strength; Ammercal No. 1; Ammercal No. 3; Ammercal No. 5; Cical Lotion; Cical Lotion With Oil; Tarcical; Cical Pomade; Formical (Lotion); Cical Pine Tar Shampoo and Veracal. None of these have been presented for the Council's consideration and no proof for the claims made for any of them has been submitted.

Concerning Cical Base 125, such claims as the following are made in the advertising: "Remarkable in softening and emollient properties, CICAL BASE 125 possesses that desirable power of penetration inherent in animal oils, fats and waxes." "Because of its complete diffusibility, it offers a maximum dosage of medicaments incorporated in it to the area under treatment." "CICAL BASE 125 is entirely lacking in the clinging greasiness so characteristic of petrolatum (vaseline) bases and has none of the disagreeable odor or stickiness of lanolin (wool fat)." It is stated to be very stable with no tendency to turn rancid on aging. The broad claim is made that Cical Base 125 has advantages possessed by no other base. The only proof submitted for this broad claim is two photomicrographs in the circular "Cical Base 125-Diffusible in Exudates," purporting to show the difference in diffusibility of hydrous lanolin in contact with a drop of water and Cical Base in contact with a drop of water. This is certainly not proof for such broad claims as the firm advances. The case histories presented show nothing unusual or extraordinary and certainly cannot be considered as competent controlled clinical evidence to establish the therapeutic claims made for Cical Base 125.

The Council declared "Cical Base 125" unacceptable for inclusion in New and Nonofficial Remedies because it is a preparation of essentially secret and uncontrolled composition marketed under a proprietary, noninformative name (in which there is the use of numbers), with unsupported therapeutic claims.

When the foregoing report was sent to the firm, it replied at length giving its reasons for presenting the product for consideration, explanation for its claim concerning the diffusibility of the base, explanation of the significance of the names (the name Cical, for instance, being derived from the initials of the firm name, Chemical Industries of California) and a résumé of its marketing policies. None of this in the opinion of the Council furnished reason for modifying the report of the Council's consideration. The Council therefore reaffirmed its rejection and authorized publication of the statement.

ANTICOMAN NOT ACCEPTABLE FOR N. N. R.

Anticoman tablets were submitted to the Council on Pharmacy and Chemistry by Bruno L. Monias, American representative of Anticoman G.m.b.H. of Berlin-Halensee, Germany, as a therapeutic agent for the correction of hyperglycemia and glycosuria. The tablets are said to consist of pancreatic enzymes, sodium phosphate, tannic acid, bismuth subnitrate and decamethylenediguanidine ditartrate. A previous Council Report held another product (Pancresal), proposed for the same purposes, to be unacceptable (THE JOURNAL, May 27, 1933, p. 1686) which contained, similarly, a guanidine derivative together with a number of other substances.

For the purpose of correcting hyperglycemia it may safely be said that (1) tannic acid, bismuth subnitrate and sodium phosphate are worthless and (2) that no pancreatic extract on oral administration has been shown thus far to have any effect.

Since the employment in 1926 of decamethylenediguanidine under the name of Synthalin by a number of workers (notably Frank, Nothmann and Wagner) in the treatment of diabetes, a rather extensive literature has accumulated. Apparently the drug does produce a reduction in blood sugar but, as shown by Morawitz and verified by Hornung, and by Boedeker and Junkersdorf (Sollmann, Torald: A Manual of Pharmacology, ed. 4, Philadelphia, W. B. Saunders Company, 1936) this action is quite different in mechanism from that of insulin. Here the hypoglycemic influence is accomplished through damage to liver function and structure leading to exhaustion of hepatic glycogen. The therapeutic effect of the drug is shown by Bischoff to parallel closely the degree of toxicity and extent of liver damage produced. Other workers have reported the consistent side-effects of severe gastro-intestinal disturbances, nervous depression and even acute nephritis.

In view of the danger attending the use of guanidine derivatives, as contrasted with the singular freedom from toxicity accompanying the intelligent administration of insulin, it would seem to constitute a lack of therapeutic finesse to employ the former, regardless of the lesser convenience occasioned by the parenteral route.

Anticoman presents other features which are in conflict with the rules of the Council, but the most important from the standpoint of physician and patient alike is that such mixtures tend to replace a thoroughly investigated and highly satisfactory drug (insulin) with one of dubious and unpredictable therapeutic value which presents significant toxicologic possibilities.

Until there is clear cut, carefully controlled evidence, no product which is in the twilight zone of this field of scientific experimentation should be employed for the treatment of diabetes, for which the physician already has in his armamentarium the excellent insulin and the helpful dietary regimen.

The Council declared Anticoman not acceptable for New and Nonofficial Remedies because it is a mixture of well known substances marketed under a therapeutically suggestive name with unwarranted therapeutic claims which may tend to replace the use of a scientifically correct and physiologically sound therapeutic regimen.

This report was submitted to the manufacturers, and the reply indicated that the firm felt that Anticoman was being discriminated against. The Council gave it the same attention, consideration and evaluation that any other product receives. The firm claimed that the guanidine content was detoxified by the pancreatic powder; but while there is some evidence that Anticoman does not produce the degree of damage encountered with other guanidine compounds, evidence that such effects were never encountered has not been submitted to the Council. The firm stated that it was open to suggestion as to a name. The Council replied that it would consider the question of a name provided the other objections were met. The firm asked for reconsideration of the usefulness of Anticoman in cases of mild diabetes with and without insulin. Such reconsideration led the Council to recommend that the previous action be reaffirmed and the report be approved for publication.

The firm was notified of this action and in reply reiterated certain points which it has attempted to maintain without submitting what the Council considers adequate evidence to support the contentions involved. The whole question was reviewed by the Council and the previous action reaffirmed.

POISONIVI AND POISONOK NOT ACCEPTABLE FOR N. N. R.

A physician called the attention of the Council to a letter sent by the Cutter Laboratories to one of his patients recommending "Poisonivi" to be taken by mouth. Some products of this firm stand accepted by the Council and the firm should therefore be familiar with the Council's rulings. Although the Council has accepted some rhus preparations marketed under correctly informative names, it has not accepted, nor previously considered, the preparations Poisonivi and Poisonok of the Cutter Laboratories, which are proposed for use against rhus poisoning and are marketed under coined, therapeutically suggestive names. The Secretary asked the firm whether the physician had been correctly informed that this product was being directly advertised to the public. In reply to the Secretary's inquiry, the firm wrote (Oct. 7, 1936):

> "For some years we have marketed 'Poisonivi' and its companion product 'Poisonok' through drug channels, although this has been confined almost exclusively to the West Coast.
>
> "Occasionally here in the East we receive mail inquiries from people who have either used the material successfully in the past and wish to obtain more of it, or from people who have heard of the product from others, who have used it and ask us for information about it.
>
> "When such inquiries received their reply from us, the products and its limitations have been described and the enclosed circular is attached to our reply.
>
> "We are not aware that we have trespassed any rules in sending out this sort of information in response to inquiries on this product, which, by the way, is the only one we manufacture which is handled in this manner. I would appreciate hearing from you further if we are wrong in this case."

The Council considered the circular sent by the Cutter Laboratories and found that it could not be held as anything but indirect advertising to the public of medicinal preparations, a direct contravention of the Council's rules. In the circular under consideration the products are advertised as curative agents. Moreover, the lay advertising of these preparations will undoubtedly tend to promote self medication very harmful in character. It is almost superfluous to point out the danger which might arise from the lay person's diagnosing his condition and treating it with a preparation which might not be intended for his real affliction and which indeed might aggravate it. If Poisonivi and Poisonok have any merits they may much better be directed to the medical profession.

The Council declared Poisonivi and Poisonok unacceptable for New and Nonofficial Remedies because they are marketed under proprietary, therapeutically suggestive names and advertised directly to the public.

ENDO-BISARPHEN NOT ACCEPTABLE FOR N. N. R.

Endo-Bisarphen is the proprietary name under which Endo Products, Inc., markets a product stated to be ". . . a combination of organic arsenic with bismuth, in solution eminently suitable in 'Wassermann-fast' cases and in congenital syphilis." In an advertising circular it is stated that "Each 2 cc. represents approximately 26 mgm. of metallic bismuth combined with 10 mgm. of Arsenic in the form of a Paraglycolamino-arsonic acid derivative, of the Arsphenamine type."

Endo Products, Inc., has not submitted this preparation for the Council's consideration, nor has any product of this firm been considered or accepted by the Council. The A. M. A. Chemical Laboratory has made no investigation of the preparation, and no actual chemical analysis of the product is available.

An advertising circular bearing the caption "Endo Bisarphen, Bismuth & Arsenic combined in a stabilized solution for Intramuscular Administration in all stages of Syphilis" contains the following statement: "It is a generally accepted theory that Arsphenamines become spirocheticidally active only after they have been converted into a chemical substance which is therapeutically effective. Bisarphen, however, is directly spirocheticidal and undergoes no chemical changes, permitting for its immediate action." No proof for this claim is given. There are five brief and wholly inadequate "case histories" furnished in this circular. All refer to so-called Wassermann-fast cases and are worthless from the standpoint of showing the value of Endo-Bisarphen.

The only literature that can be found on Endo-Bisarphen is a favorable but inadequate paper by Dr. Jacob Skeer (*Urol. & Cutan. Rev.* **37**:495 [July] 1933). He stated that he had given about 700 injections of the product intramuscularly. The number of cases treated was not stated, nor were the types of cases outlined. The product, he states, was devised by Vincent Christina in 1929 and is claimed to be a combination of bismuth and arsenic, a synthetic compound, each 2 cc. ampule containing 44 per cent metallic bismuth and 16 per cent organic arsenic. The author claims that it has a higher water soluble bismuth content and a higher arsenic content than any other compound. He makes the statement "According to findings of syphilologists ultimate effects are equal to that of modern intensive combined treatment with arsphenamine, bismuth and mercury." He states that the spirochetes have been known to disappear in forty-eight hours and that lesions are healed after ten to twenty injections.

The author also states that it is of value in relieving gastric symptoms and the lightning pains of tabes and in Wassermann-fast cases. Since he has given only 700 injections of the product himself, and there is no literature to call on, it is difficult to see how the ultimate effects of the product, "according to findings of syphilologists," could be "equal to that of modern intensive combined treatment with arsphenamine, bismuth and mercury."

No information is available as to the real effect of Endo-Bisarphen on the disappearance of spirochetes from primary lesions, the rapidity of disappearance of secondary lesions, or the true effect on cerebrospinal syphilis from the standpoint of study of clinical results, change in cell count or change in

serologic reactions, in gold colloid curve, and so on. No real evidence of either the efficacy or toxicity of this product has ever been cited.

The firm apparently is a subsidiary of the Intravenous Products Company of America, Inc., 251 Fourth Avenue, New York City. No preparation of either of these organizations stands accepted by the Council for inclusion in New and Nonofficial Remedies. A note appeared in THE JOURNAL fifteen years ago ("Intravenous Specialties," THE JOURNAL, Dec. 10, 1921, p. 1912) concerning certain preparations of the Intravenous Products Company of America. The present day advertising of both the Endo Products Co. and the Intravenous Products Company of America Inc. leaves much to be desired, particularly from the standpoint of scientific accuracy.

The physician should contrast the method of introduction of Endo-Bisarphen with that of another firm which has recently introduced an arsenical for the treatment of syphilis. The latter firm conducted researches over a period of three years, spent large sums of money and had the advantage of study of many hundreds of cases in several university clinics in this country before it deemed the product ready for submission to the Council, and only after the product was accepted by the Council did the firm venture to put it on the market for general use in the treatment of syphilis. Apparently, the promoters of Endo-Bisarphen have chosen to market their preparation without the benefits afforded by time-consuming but essential preliminary procedures of this sort.

The Council declared Endo-Bisarphen unacceptable for inclusion in New and Nonofficial Remedies because it is a preparation of inadequately declared composition and unsubstantiated therapeutic usefulness, marketed under a proprietary name with unwarranted therapeutic claims.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

SYNTROPAN.—The phosphate of *d-l*-tropic acid ester of 3-diethylamino-2,2-dimethyl-1-propanol — $C_6H_5CH(CH_2OH)COO.CH_2C(CH_3)_2CH_2N(C_2H_5)_2.H_3PO_4$.

Actions and Uses.—The actions of syntropan are similar to those of atropine. However, syntropan acts to a certain extent directly on smooth muscle in addition to its inhibitory effect on parasympathetic endings. It does not depress salivary secretion as actively as atropine or induce mydriasis as readily, and its inhibitory action on the parasympathetic innervation of the heart is not as pronounced as that of atropine. Syntropan is employed for its antispasmodic action on smooth muscle.

Dosage.—For oral administration, one tablet (50 mg.) three or four times a day; for subcutaneous or intramuscular administration, 1 cc. of syntropan solution (representing 10 mg. of syntropan) three times a day.

Manufactured by Hoffmann-LaRoche, Inc., Nutley, N. J. U. S. patents 1,932,341 (Oct. 24, 1933; expires 1950) and 1,987,546 (Jan. 8, 1935; expires 1952). U. S. trademark 308,080.

Ampuls Syntropan Solution, 0.01 Gm., 1 cc.

Tablets Syntropan, 0.05 Gm.

Syntropan occurs as a white, crystalline powder, with a faint roseate odor and having a bitter taste; freely soluble in water, slightly soluble in absolute alcohol, insoluble in chloroform and ether. The aqueous solution is acid to litmus. Syntropan melts at 142 to 145 C. From aqueous solutions, alkali hydroxides precipitate the free base as a water-white oil, which does not solidify at ordinary temperature.

Place about 0.01 Gm. of syntropan in a porcelain dish, add a few drops of nitric acid, and evaporate to dryness on a water bath: a yellow residue results; cool, add a few drops of alcoholic potassium hydroxide solution: the mixture is a violet color.

Dry about 0.5 Gm. of syntropan, accurately weighed, to constant weight at 100 C.: the loss in weight does not exceed 1 per cent. Incinerate about 0.5 Gm. of syntropan, accurately weighed, in a platinum crucible: the residue does not exceed 0.1 per cent. Transfer about 0.5 Gm. of syntropan to a 500 cc. Kjeldahl flask and determine the nitrogen content according to the official method described in Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists, third edition, page 20, chapter 2, paragraph 22: the percentage of nitrogen corresponds to not less than 3.3 per cent nor more than 3.6 per cent when calculated to the dried substance.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

COLONIAL FLOUR, PHOSPHATE ADDED

Manufacturer.—Blish Milling Company, Seymour, Ind.

Description.—An "all purpose" "short patent" flour milled from soft wheat with 0.4 per cent added monocalcium phosphate; bleached.

Manufacture.—Selected soft Indiana wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with a mixture of benzoyl peroxide and calcium phosphate (¼ ounce per 196 pounds) and with nitrogen trichloride (1/64 ounce per 196 pounds) and with 0.4 per cent monocalcium phosphate.

Analysis (submitted by manufacturer).—Moisture 12.2%, total solids 87.8%, ash 0.7%, fat 0.7%, protein (N × 5.7) 8.4%, crude fiber 0.3%, carbohydrates other than crude fiber (by difference) 77.7%.

Calories.—3.50 per gram; 99 per ounce.

MAYBELLE BRAND OLEOMARGARINE

Manufacturer.—The Cudahy Packing Company, Chicago.

Description.—An oleomargarine prepared from hydrogenated oleo and cottonseed oils, pasteurized cultured skimmed milk and salt. It contains 0.1 per cent of sodium benzoate.

Manufacture.—Hydrogenated oleo and cottonseed oils are heated in a steam-jacketed kettle, emulsified with the added milk and salt, and crystallized. The mixture is churned until the proper consistency is obtained, refrigerated, molded into prints and automatically wrapped and packed in cartons.

Analysis (submitted by manufacturer).—Moisture 15.4%, total solids 84.6%, ash 3.32%, sodium chloride (NaCl) 3.25%, protein (N × 6.25) 0.3%, fat (ether extract) 80.3%, carbohydrates (by difference) 0.7%.

Calories.—7.27 per gram; 206 per ounce.

(1) PERFECT'S BRAND GOLDEN TABLE SYRUP
(2) PERFECT'S BRAND CRYSTAL WHITE TABLE SYRUP

Distributor.—A. H. Perfect and Company, Fort Wayne, Ind.

Packer.—Torbitt and Castleman Company, Louisville, Ky.

Description.—Table syrups; (1) a blend of corn syrup (90 per cent) and refiners' syrup (10 per cent); (2) a blend of corn syrup (90 per cent) and sucrose syrup (10 per cent) flavored with vanilla; the same as Bob White Brand Fancy Golden and Crystal White Table Syrups (THE JOURNAL, Aug. 3, 1935, p. 369, and Oct. 19, 1935, p. 1271).

KING OF HAWAIIA BRAND PINEAPPLE DESSERT CUTS

Distributor.—Alexander & Baldwin, Ltd., Honolulu, Hawaii.

Packers.—Kauai Pineapple Company, Kalaheo, Kauai; Baldwin Packers, Ltd., Lahaina, Maui, and the Maui Pineapple Company, Kahului, Maui (subsidiaries).

Description.—Essentially the same as crushed, sliced and tidbit pineapple products distributed by Alexander and Baldwin (THE JOURNAL, April 13, 1935, p. 1331, and June 8, 1935, p. 2097) except for the shape of the pieces. All trace of the core and fiber is removed from the fruit.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 22, 1937

THE RABIES MENACE

The alarming situation which prevailed throughout the country last year in relation to dog-bites and rabies appears even more menacing this spring. During the recent warm days, according to newspaper reports, more than a hundred persons have been bitten by dogs daily in the city of Chicago alone. This represents more than a 50 per cent increase over the number of bites during the similar period of 1936. More heads of suspected animals have been examined, and the number found positive for rabies has also increased more than 50 per cent. A dramatic illustration of the situation was provided by a mongrel, believed rabid, which invaded an elementary school classroom in Chicago two weeks ago and bit four pupils. Two more children were bitten before this rabid animal was captured. Similar incidents seem inevitable as long as the numerous stray dogs remain at large.

Although conditions in Chicago may be more serious than those elsewhere, the situation is also actually or potentially critical in all other districts where dogs, especially strays, are numerous. The problem has received previous recognition in THE JOURNAL.[1] As judged from reports from all over the world, rabies is generally far from quiescent. The Sixth Analytical Review [2] on the Results of Anti-Rabies Treatment published by the League of Nations may be cited. The statistics quoted refer almost entirely to the year 1933, which in general may be considered far less dangerous than now. The mortality figures are based on reports from Pasteur institutes and hence cover only treated cases. The mortality among 286,373 Europeans was 0.16 per cent, and in the case of 219,681 non-Europeans the mortality rate was 0.72 per cent. These were the combined figures available. Another significant point mentioned in the review was that twelve out of 2,500 persons bitten on the limbs and beginning treatment within a week developed rabies, and each of the twelve developed rabies within thirty days after having been bitten. The need for constant vigilance in starting treatment early is clearly indicated.

The extent to which informed sources recognize the great danger of rabies is further illustrated by the fact that the Rockefeller Foundation began a program of laboratory and field work on rabies in 1936. This disease, according to the foundation report,[3] has become increasingly menacing, particularly in some of the Southern states. With this recognition that some regions are more threatened than others, it must also be emphasized that no areas where possible carriers of rabies are present can be considered exempt. The Rockefeller report also states that there has been little research on this disease since Pasteur's time. A quicker and more positive test for rabies in animals and a less cumbrous method of vaccination are badly needed.

All these facts point to the conclusion that immediate and coordinated action is necessary. Rabies is a disease in which individual efforts are relatively helpless unless aided by the full machinery of social organization. The press, public health officials, the police and physicians —in both their individual and their official capacities— should take steps to combat this threatening situation at once if a considerable number of unnecessary deaths is to be avoided. In the face of the now existing information as to the frequency and rapid spread of rabies among animals, it seems criminal to postpone action until the disease is identified in human beings. Because rabies is primarily a disease of dogs, it seems likely that this campaign will have the whole-hearted support of all the animal humane societies.

REPRODUCTIVE PERFORMANCE IN MAN

The purpose of a recently reported study by Pearl [1] was to determine the proportion of women potentially capable physiologically of reproducing in 1930 who actually did so in that year. In the birth registration area of the United States, which in 1930 included all the states except Texas and South Dakota, there were 30,871,292 living females between the ages of 15 and 50. Approximately 63 per cent were married, while 37 per cent were either single, widowed or divorced. Nevertheless, as Pearl points out, the vast majority of them were potentially capable physiologically of reproduction. Theoretically, therefore, there might conceivably have been an equal number of births, or at least some kind of product of conception during that year. Actually, in 1930 there were officially recorded as occurring in the same area to mothers aged 15 to 49 inclusive a total of 2,256,913 living and stillbirths, including the illegitimate as well as the legitimate. This does not represent all the reproductive activity of the year, since it does not include a considerable number of

1. Control of Rabies, editorial, J. A. M. A. **105**: 1432 (Nov. 2) 1935.
2. McKendrick, A. G.: A Sixth Analytical Review on Reports from Pasteur Institutes on the Results of Anti-Rabies Treatment, Quart. Bull. Health Organ., League of Nations **4**: 732 (Dec.) 1935.
3. Fosdick, R. B.: The Rockefeller Foundation—A Review for 1936, New York, 1937, p. 20.
1. Pearl, Raymond: Potential and Actual Reproductive Performance in Man, Human Biol. **8**: 508 (Dec.) 1936.

unrecorded abortions, nor does it record, on the contrary, the inclusion in the total of multiple births, each of which required only one mother. After correction Pearl takes the approximate figure of 2,287,196 births probably produced by mothers between 15 and 49 years of age inclusive in 1930. Thus only about 7.4 per cent of the females physiologically potentially capable theoretically of reproducing in that year actually did so. Even if 15 per cent is deducted because of probable physiologic sterility, the percentage of births to physiologically eligible women rises only to 8.7. It follows that if each of the women from 15 to 49 years of age was to reproduce annually for approximately thirty-three years at the average rate exhibited by the whole group in 1930 she would produce as an average in her whole reproductive life a total of approximately 3.3 births. This figure is startling in its contrast to the conditions which prevail among organisms lower in the evolutionary scale than man. Individually and racially there appears to be, under the present social and environmental conditions, a slow but definitely progressive trend toward less and less human reproduction without any material lessening of human sexual activity. Thus it seems probable that while only about 10 per cent of the women theoretically potentially capable of reproduction in 1930 actually reproduced, at least 70 to 75 per cent of them were sexually active in greater or lesser degree in that year.

More than three fourths of all the births in 1930 were to native white mothers. Also, more than three fourths of all the women who potentially might have been mothers were native whites. Of the remaining births, 11.5 per cent were to colored mothers, of whom probably over 92 per cent were Negroes. Taken as a whole, the closeness of agreement in 1930 between the percentages of live births and of potential mothers by nativity-race classes was extraordinary. Each nativity-race class, whether native white, foreign-born white, Negro or other, was, as a whole group, reproducing in 1930 proportionately to its representation in the population with a near approach to exact precision. Any idea that foreign-born women as a group in the whole United States population are at the present time outbreeding their native-born sisters—a notion of rather widespread journalistic prevalence, at least—finds no vestige of support from the actual facts of 1930.

Under present environmental conditions, Pearl says, and especially under the present social and economic environment, there seems to be evidence of a slow progressive trend toward more facultative interference with reproductive activity. If such a trend should persist indefinitely, man would eventually disappear, and while this prediction has been made it seems unlikely of fulfilment. The bulk of reproducing in all nativity-races is done by women between the ages of 20 and 34 years. Since this is true for all groups, and, as has been previously mentioned, their weighted mean relative fertilities, on a live birth basis, were, for each of the groups as a whole, approximately equal, and since, as has been also determined, the contraceptive efforts of Negroes are both less frequent and less effective, interpretation of the facts offers considerable difficulty. Pearl concludes that a really sound judgment as to the precise nature and degree of the effect of contraceptive practices on the overt or expressed reproductivity of large population aggregates is still a long way from being understood.

SYMPOSIUM ON HEALTH PROBLEMS IN EDUCATION AT ATLANTIC CITY SESSION

For the first time at a meeting of the American Medical Association a program [1] will be presented by the Joint Committee on Health Problems in Education, through which the American Medical Association has cooperated with the National Education Association since 1911. The American Medical Association Sections on Pediatrics and on Industrial and Preventive Medicine and Public Health have joined in sponsoring this symposium. The National Education Association, representing more than 200,000 teachers, and the American Medical Association, representing more than 100,000 physicians, are the natural and logical groups to cooperate in the solution of health problems created or at least presented by education. The Joint Committee was created in 1911 as one phase of the awakening interest in public health which took place at that time and which gave birth to many if not most of the well known health movements of today. Before that time, interest of the public in health had been spasmodic and the principal attention given to public health questions had been by the medical profession.

Health has been placed first among the seven objectives of education. The Joint Committee in its earlier days met a great need for brief, inexpensive manuals for teachers on various phases of school health problems, such as sanitation, ventilation and lighting. The greatest contribution of the committee has been its manual Health Education,[2] which is now in its third revision and which has sold thousands of copies to teachers, who for many years relied on it as practically the sole textbook on health education. There are now numerous textbooks, but the Joint Committee's manual still maintains high rank as an authoritative document. The time is past when technical information needs to be given to the teacher by a joint committee. A crying need exists, however, for a declaration of policy with respect to the scope, extent and limitations of responsibility of the schools for the health of school children. In recognition of this need the Joint Committee has published a survey of opinions on school

1. Symposium on Health Problems in Education, J. A. M. A. **108**: 1615 (May 8) 1937.

2. Health Education, A Program for Public Schools and Teacher Training Institutions, 1930 edition, prepared by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association (1937 revision in preparation).

health policies.[3] At its last meeting, at New Orleans, a resolution was passed creating a special subcommittee to report not later than Nov. 1, 1937, with at least a tentative draft of a declaration, not of the views of others, but of opinions of the Joint Committee with respect to policies toward school health problems.

The symposium at Atlantic City, in which prominent physicians and health educators will participate, is planned as an opportunity to discuss matters of policy. Views expressed in this symposium may well have a considerable influence on the deliberations of the Subcommittee on Policy. All physicians interested in the health of school children and in the relation of school health policies to medical practice will be welcomed at the symposium. It will be held at 2 p. m. Tuesday, June 8, in the Music Room of the Hotel Chalfonte.

Current Comment

ROENTGEN IRRADIATION OF THE OVARIES IN MAMMARY CANCER

The existence of a relationship between the secretion of the ovaries and the growth and development of the mammary glands has been well established, both in man and in experimental animals. In man, this relationship is evident in the development of the breasts at puberty and subsequently in the rhythmic changes of the mammary gland during the menstrual cycle. That these changes are brought about chiefly by estrogen, secreted by the ovary, has been adequately demonstrated. Because of the growth promoting action of this factor on the mammary gland and because of the relatively high incidence of carcinoma of the breast during the period of greatest ovarian activity, many investigators have long suspected that there might exist a causal relationship between estrogen and mammary cancer. A considerable amount of recent experimental work appears to support such a view. For example, a number of compounds known to possess estrogenic properties are definitely carcinogenic under certain laboratory conditions.[1] Of particular interest in this connection is the recent observation [2] that the repeated injection of estrogenic substances into male mice frequently produces carcinoma of the mammary glands. Clinical reports that may be interpreted as suggestive of a relation between the ovaries and mammary cancer have appeared in the literature for many years. Indeed, as early as 1889, bilateral oophorectomy was declared [3] to be beneficial in the treatment of the disease. Since that time numerous reports of an improvement in cancer of the breast following castration have appeared. With the discovery of the inhibitory effect of roentgen irradiation on the activity of the ovaries, this type of treatment has been substituted in some cases for the surgical removal of the glands. According to some investigators [3] the results on the whole have been favorable. Consideration of the extensive and diverse evidence pointing to a relationship between the ovaries and the development of mammary cancer has recently led one investigator [3] to suggest that roentgen irradiation of the ovaries, with the resulting elimination of estrogenic activity, may be beneficial as a supplement to radical mastectomy and radium therapy in the treatment of the disease. The value of this type of auxiliary therapy in the treatment of human mammary carcinoma, however, remains to be more adequately determined.

3. A Preliminary Study of Group Opinions Relating to Certain School Health Policies, prepared and published under the direction of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, 1934-1935.

1. Loeb, Leo: Estrogenic Hormones and Carcinogenesis, J. A. M. A. **104**: 1597 (May) 1935.

2. Gardner, W. U.; Smith, G. M.; Strong, L. C., and Allen, Edgar: Experimental Production of Malignant Growths in Mice by Estrogenic Chemicals, J. A. M. A. **107**: 656 (Aug. 29) 1936.

3. Witherspoon, J. T.: Roentgen Irradiation of the Ovaries as Supplement to Surgical and Radium Therapy for Mammary Cancer, Arch. Surg. **33**: 554 (Oct.) 1936.

PROGRESS IN INTERNAL MEDICINE

So rapid is progress in medicine and so numerous are the publications recording that progress that few physicians can hope to keep constantly up to date even in special fields. For some time the *Archives of Internal Medicine* has been publishing monthly reviews of developments in many conditions. Already during 1937 Rackemann has reviewed the literature on allergy for 1936; Wilder and Wilbur have reviewed recent contributions to the subject of metabolism and nutrition, and in the April issue Greene and others have surveyed recent contributions to our knowledge of liver and biliary tract disease. Many physicians have found these collective reviews so useful that they have urged the publication of an annual volume containing this material. Physicians who are unacquainted with these succinct compilations and analyses of medical progress are neglecting a most useful addition to graduate education.

REGISTRATION UNDER HARRISON NARCOTIC ACT

On or before July 1, every physician registered under the Harrison Narcotic Act must reregister with the collector of internal revenue of each district in which he maintains an office or a place for the treatment of patients. Failure to reregister within the time allowed by law adds a penalty of 25 per cent to the annual narcotic tax payable at the time of registration and in addition makes the physician in default liable to a fine not exceeding $2,000, or to imprisonment for not exceeding five years, or to both. While the Commissioner of Internal Revenue has been lenient in the past in enforcing the criminal penalties provided by the act for tardy registration, continued disregard on the part of some physicians of the requirement of the act with respect to reregistration will inevitably lead to criminal prosecutions. In recent years the commissioner has given some negligent or recalcitrant physicians the choice between paying substantial sums by way of compromise in lieu of the penalties for their offenses or, as an alternative, accepting criminal prosecution, with resultant publicity and liability to fines of indefinite amounts and possibly imprisonment. This was an act of grace on the part of the commissioner; under the

law he might have instituted criminal prosecutions without allowing the offending physicians any choice in the matter. Physicians must bear the requirements of the act in mind. If tardiness in registration results in criminal prosecutions, hereafter, they must recognize that ample notice has been given them.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

State Medical Election.—Dr. Edward S. Sledge, Mobile, was elected president of the Medical Association of the State of Alabama at its annual meeting in Birmingham, April 22. Dr. Alvin B. Coxwell, Monroeville, was reelected vice president of the southwestern division for four years, and Dr. Douglas L. Cannon, Montgomery, was reelected secretary. The next meeting of the association will be held in Mobile, April 19-21, 1938.

Personal.—Dr. William J. Craig, Shreveport, La., has been named health officer of Lawrence County.——Reuben T. Crawford, D.D.S., Montgomery, has been placed in charge of the reinstated division of oral hygiene of the bureau of hygiene and nursing of the state department of health. The bureau was abandoned during the depression on account of depleted funds.——Dr. Holland Thompson, formerly of the Maybury Sanatorium, Northville, Mich. (Detroit Municipal Tuberculosis Hospital), has been appointed tuberculosis clinician of the Alabama State Department of Health.——Dr. James O. Colley Jr., Troy, has been appointed physician to the Troy State Teachers College, succeeding Dr. William Shelby Sanders, resigned.—— Dr. Albert C. Jackson, Jasper, was chosen president of the Alabama Hospital Association at its meeting in Birmingham, April 21.—— Dr. Abraham I. Perley, Coleanor, has been appointed health officer of Chambers County, effective May 1; he succeeds Dr. Chester E. Johnson Jr., who resigned to engage in private practice.

ARIZONA

Twenty Years as State Secretary.—The Arizona State Medical Association, at its annual meeting in Yuma, April 1-3, presented Dr. Delamere F. Harbridge, Phoenix, with a solid gold, diamond studded badge emblem, in appreciation of his having served twenty years as secretary of the organization.

Hospital News.—A new building will be erected for the county hospital in Phoenix, which will accommodate 200 patients.——A hospital is to be erected in Pima County, according to *Southwestern Medicine*. The WPA will furnish the labor, and $10,000 will be made available from the relief fund for materials. Contracts were awarded April 17 for the hospital equipment, which will cost $21,700.

CALIFORNIA

State Medical Election.—Dr. William W. Roblee, Riverside, was chosen president-elect of the California Medical Association at its annual meeting in Del Monte, May 5, and Dr. Howard Morrow, San Francisco, was inducted into the presidency. Dr. Frederick C. Warnshuis, San Francisco, was reelected secretary. The next annual session will be held at Pasadena, the date to be determined later.

Annual Tuberculosis Meeting.—The California Tuberculosis Association held its annual meeting at Riverside, April 2-3. One feature of the meeting was a symposium on silicosis, at which the speakers were Drs. Leroy U. Gardner, director, Saranac Laboratory for the Study of Tuberculosis, Saranac Lake, N. Y.; Royd R. Sayers, U. S. Public Health Service, Washington, D. C., and Anthony J. Lanza, assistant medical director, Metropolitan Life Insurance Company, New York.

Memorial Tablet to Dr. Mattison.—A bronze plaque was presented to the library of the Los Angeles County Medical Association, Los Angeles, May 13, in honor of the late Dr. Fitch C. E. Mattison, Pasadena. Mrs. Bess M. Behr, daughter of Dr. Mattison, unveiled the plaque. Speakers included Paul Popenoe, D.Sc., and Drs. George H. Kress, Leroy B. Sherry and Harlan Shoemaker. Executed by Miss Maud Daggett, Pasadena, the plaque bears the portrait of Dr. Mattison, who at one time was president of the Los Angeles County Medical Association and, in 1913, of the California Medical Association. He died in 1932, aged 71.

COLORADO

Personal.—Dr. John A. Sevier, Colorado Springs, has been elected president of the Colorado Tuberculosis Association. —— Dr. Rudolph Albi, Denver, was recently appointed a member of the Colorado State Board of Medical Examiners succeeding Dr. Vardry A. Hutton, Florence, whose term expired April 3; Dr. Albi's term will end in 1943.—— Dr. Morris Hinenburg, executive director of the Jewish Hospital, Brooklyn, N. Y., has been appointed superintendent and medical director of the Sanatorium of the Jewish Consumptives' Relief Society, Spivak, effective June 1.

Conference on Psychiatry.—At the request of several state hospital executives, a three day conference was held recently at the Colorado Psychopathic Hospital to discuss the recent advances in psychiatry, especially the insulin shock treatment of schizophrenia, fever therapy treatment and the possibilities of the additional use of state hospitals for teaching and research. Seventeen state hospital executives attended the conference, including the superintendents of each hospital in Nebraska, and representatives from Kansas, Wyoming, Utah, New Mexico, Washington and, in addition, staff members from the Colorado State Hospital at Pueblo.

CONNECTICUT

Personal.—Dr. Francis G. Blake, Sterling professor of medicine, Yale University School of Medicine, New Haven, was recently guest of honor at a birthday dinner. Dr. George Blumer, who preceded Dr. Blake as professor of medicine, was toastmaster.——Dr. Francis I. Nettleton has been appointed health officer of Shelton.

Study of Infant and Maternal Mortality Rates.—The Hartford Board of Health has authorized its president, Dr. George E. Cogan, to appoint a committee to study a plan whereby all infant and maternal deaths in the city would be reviewed at regular meetings of the obstetric and pediatric services of the city's four hospitals. According to the *New England Journal of Medicine* the plan was proposed by Dr. James R. Miller before the Hartford Medical Society, February 15. Its objective is to establish quarterly meetings to review these deaths as reported by the board of health. Similar plans in New Jersey and Ohio have been effective in reducing the mortality rates, it was stated.

DISTRICT OF COLUMBIA

In Memory of Dr. Wilmer.—A bronze plaque was unveiled in the Chapel of St. Joseph of Arimathaea, Washington, D. C., recently, in tribute to Dr. William Holland Wilmer, professor of ophthalmology, Georgetown University School of Medicine, 1906-1925. In 1925 Dr. Wilmer became professor of ophthalmology at Johns Hopkins University School of Medicine, Baltimore; ophthalmologist in chief at Johns Hopkins Hospital, and director of the Wilmer Institute, which was created as a tribute to him by patients and friends. He retired from these positions in 1934 and died March 12, 1936, aged 72.

FLORIDA

Dade County Society and Dr. Mark White.—The legislative committee of the Dade County Medical Society, Miami, voted, April 14, "to keep Dr. Mark White out of Florida," unless he returns to serve a sentence received on his conviction of practicing medicine without a license in the state, a charge to which he is said to have pleaded guilty in June 1936. In February 1937 when it was ascertained that his bulletins "The Thyroid and Other Ductless Glands" were being sent through the mail to physicians, a complaint was filed, but White left that night by plane for Oklahoma and Chicago. According to the records of the Association, White is reported to have graduated from the St. Louis College of Physicians and Surgeons in 1910 and licensed to practice in Iowa in 1918 and in Oklahoma in 1919 by reciprocity with Iowa. In 1919 the Illinois State Department of Registration refused him a license. In 1926 it was reported that he had been convicted in the court of the mayor of Ashland, Ohio, for the illegal practice of medicine and surgery and fined $100 and costs. In April 1936 an information card returned to the Association headquarters indicated that he was practicing in Florida.

ILLINOIS

Lectures on Obstetrics and Pediatrics.—Two talks by Drs. Charles E. Galloway, Evanston, and John A. Bigler, Highland Park, May 26, will conclude the series of lectures on obstetrics and pediatrics which have been given throughout the state recently. Their subjects are, respectively, "Treatment of Abortions" and "Tuberculosis." When the present series ends, thirty lectures will have been given in groups of six each in Dewitt, Logan, Sangamon, McLean, Menard, Mason, Fulton and McDonough counties. It is hoped to resume the series in the fall. Dr. Harold H. Hill, formerly associate in the department of obstetrics and gynecology, University of Illinois College of Medicine, as field consultant, is in charge of arrangements for these lectures, which are a part of a national program to improve conditions of mothers and children in rural areas.

Chicago

Personal.—Dr. Disraeli W. Kobak has received from Belgium the diploma and insignia of a commander of the Royal Order of St. George in recognition of his work in physical medicine.——Dr. Max Thorek has been made a corresponding member of the National Academy of Medicine of Colombia, South America.

Survey of Air Pollution.—A survey of air pollution in Chicago is under way, with I. A. Deutch, combustion engineer for the city's smoke abatement department, and Alamjit D. Singh, M.S., of the University of Illinois, Urbana, in charge. The tests will show the amount of sulfur dioxide and carbon and other dust particles in the air, it was reported.

Second Annual Hobby Show.—The Chicago Medical Society held its second annual hobby show in the lounge of the Medical and Dental Arts Building, April 7-8. About fifty physicians had entries in the exhibit, which, during the two days, had an attendance of about 1,500 persons. Wednesday evening, Dr. Louis J. Tint gave an illustrated lecture on "Tropical and American Gardens" and "Some Views of the Cascade Range," all photographed in natural colors, and Dr. Frank P. Thompson displayed motion pictures of his recent hunting trip to Africa. Dr. Carl O. Schneider lectured Thursday evening on Bryce Canyon National Park and garden and flower scenes, which were illustrated by direct color photography, and Dr. Julius H. Hess presented a natural color motion picture of Chicago. Among the exhibits were stamp collections, paintings, camera studies and wood work, a collection of mounted specimens of leaves of common weeds that transmit hay fever, and plaster studies in obstetric anatomy.

INDIANA

Officers of State Tuberculosis Association.—Dr. Charles J. McIntyre, Indianapolis, was elected president of the Indiana Tuberculosis Association at its annual meeting in Indianapolis, April 15. Other new officers are Dr. Maurice R. Lohman, Fort Wayne, and Woodson S. Carlisle, South Bend, vice presidents; Dr. Edward M. Amos, Indianapolis, treasurer, and Mrs. William Greemelstacher, Logansport, secretary.

Immunization Campaign in Schools.—A three weeks campaign against diphtheria and smallpox was launched in the thirty-three public and parochial schools of South Bend the first week of May. Records of various classrooms will be kept and awards made to those showing the greatest improvement in percentages of children immunized and vaccinated. The drive is sponsored by the city health department.

Society News.—Dr. Ross C. Ottinger, Indianapolis, discussed the "Importance of Pelvic Examinations" before the Knox County Medical Society in Vincennes, April 13.——The Fort Wayne Medical Society was addressed in Fort Wayne, April 6, by Dr. Ward F. Seeley, Detroit, on "Heart Disease and Pregnancy from the Viewpoint of the Obstetrician."——At a meeting of the Floyd County Medical Society in New Albany, April 9, Dr. Gretchen Irene Polhemus, New Albany, spoke on allergy.

KANSAS

Dr. Earle Brown Goes to Virginia.—Dr. Earle G. Brown, for twelve years secretary and executive officer of the Kansas State Board of Health, Topeka, has resigned to become health officer of Arlington, Va., it is reported. The change was effective May 1. Dr. Brown graduated from Northwestern University Medical School, Chicago, in 1913. He engaged in private practice from 1914 to 1917 and served as health officer of Topeka from 1919 to 1925. He was president of the Conference of State and Provincial Health Authorities of North America in 1936 and of the Kansas Medical Society in 1927. Dr. Harry R. Ross, head of the division of child hygiene, will serve temporarily as secretary of the board, pending the election of a successor to Dr. Brown.

KENTUCKY

Portrait of Daniel Drake.—The Fayette County Medical Society, Lexington, has acquired a portrait of Dr. Daniel Drake, dean of Transylvania Medical College, Lexington, from 1819 to 1829 and author of a famous treatise on "Principal Diseases of the Interior Valley of North America." The portrait has been for 100 years in the possession of a Carter family in Versailles, descendants of Dr. Joseph C. Carter, for many years an intimate friend of Dr. Drake.

Society News.—Drs. William D. Haggard and William R. Cate, Nashville, addressed the Christian County Medical Society, Hopkinsville, April 20, on "Consideration of Fibroid Tumors of the Uterus" and "The Elderly Thyrocardiac" respectively.——Drs. Joseph A. Bowen, Louisville, and Carl C. Howard, Glasgow, addressed the Muldraugh Hill Medical Society, April 8, in Elizabethtown on "Cause and Effect of Kidney Infection" and "Blood Infections."——Drs. Robert Lyle Motley and Thomas D. Moore, Memphis, Tenn., addressed the Fulton County Medical Society, Hickman, on cardiac edema and lesions of the kidney, respectively.——A symposium on arthritis was presented before the Jefferson County Medical Society, Louisville, April 19, by Drs. Arthur C. McCarty, David E. Jones and Richard T. Hudson.——Dr. Randall Dow Collins, Whitesburg, addressed the Letcher County Medical Society, Whitesburg, March 30, on "Syphilis—A Community Health Problem."

LOUISIANA

Longer Life Week.—The Orleans Parish Medical Society conducted its annual "Longer Life Week" May 17-22, placing special emphasis on cancer. A special meeting of the society the first day of the campaign was devoted to a symposium on malignancy. This year the local dental society cooperated in the campaign and presented a symposium on cancer about the mouth May 19. At both meetings the March of Time film on cancer was shown. Dr. Edward William Alton Ochsner, New Orleans, was chairman of the Longer Life Week Committee this year. Appendicitis was the theme of the society's program in 1936.

MARYLAND

Conference of Health Boards.—The seventeenth annual conference of health officers and boards of health of Maryland was held at Johns Hopkins School of Hygiene and Public Health, Baltimore, May 14. The speakers included:

Dr. Allen W. Freeman, A Review of Tuberculosis in Maryland.
Dr. Roderick Heffron, Boston, The Massachusetts Pneumonia Program.
Mark Welsh, D.V.M., Maryland Program for Control of Bang's Disease.
Miss Katherine F. Lenroot, chief, U. S. Children's Bureau, Washington, D. C., Federal and State Cooperation in Promoting Maternal and Child Health.
Dr. Leroy E. Burney, U. S. Public Health Service, Washington, D. C., Some Problems in the Control of Syphilis.

Dr. Tillett Goes to New York University.—Dr. William Smith Tillett, since 1930 associate professor of medicine at Johns Hopkins University School of Medicine, Baltimore, has been appointed professor of bacteriology and director of the bacteriologic laboratories at New York University College of Medicine, New York. A native of Charlotte, N. C., and 44 years of age, Dr. Tillett graduated from Johns Hopkins in 1917. From 1922 to 1930, when he joined the staff of his alma mater, Dr. Tillett served as assistant and associate at the Rockefeller Institute Hospital, New York, and during the past year president of the American Society of Clinical Investigation.

MASSACHUSETTS

Sedgwick Lecture.—Selskar Michael Gunn, C.P.H., vice president of the Rockefeller Foundation and director of public health of the foundation in the Far East, delivered the thirteenth William Thompson Sedgwick Memorial Lecture of the Massachusetts Institute of Technology, April 23, on "Public Health Work in China."

Physician on Arctic Expedition.—Dr. Kenneth W. Sewall, resident physician at Massachusetts Memorial Hospitals, has been appointed physician and surgeon to the expedition that Lieut.-Comdr. Donald B. MacMillan will lead to the arctic this summer, according to *New England Journal of Medicine*. The expedition, consisting of thirty-five scientists and students, will sail from Boston on the *Gertrude L. Thebaud*, June 19, it is reported. Dr. Sewall graduated from Harvard University Medical School in 1934.

Society News.—The Boston Society for the Advancement of Gastroenterology was addressed, May 7, among others, by Drs. Harry Parks on "Treatment of Patients with Gastro-Intestinal Hemorrhage" and George Levene, "Experience with the Double Oral Method of Cholecystography."——The Harvard Medical Society was addressed in Boston, April 27, by Milan A. Logan, Ph.D., on "The Calcium Salts of Bone" and A. Baird Hastings, Ph.D., "Salt and Water Exchange Between Tissues and Body Fluids."——Dr. Emery A. Rovenstine, New York, discussed "Abdominal Reflex Complicating Anesthesia: Laboratory and Clinical Investigations" before the Boston Society of Anesthetists, April 6.——Dr. Thomas Archibald Malloch, New York, discussed "A Vesalian Miscellany" before a joint meeting of the Boston Medical History Club and the Boston Medical Library, April 26.

Industrial Health Problems.—Sections on industrial health problems and medical service in industry were included in the program of the sixteenth annual Massachusetts Safety Conference at the Hotel Statler, Boston, April 5-6. The following participated in the section on industrial health problems:

Manfred Bowditch, director, Massachusetts Division of Occupational Hygiene, The National Silicosis Conference of 1936-1937.
Herbert I. Miller of the Missouri State Board of Health, Ventilation Requirements in Metal Spraying.
William P. Yant, B.S., director of research, Mine Safety Appliances Company, Pittsburgh, The Occurrence and Effects of Industrial Gases.

Philip Drinker, Ch.E., professor of industrial hygiene, Harvard University School of Public Health, led the discussion. Speakers on medical aid in industry were:

Dr. William E. Browne, Boston, The Neglected Scratch.
Dr. John D. Adams, Boston, The Strained Back.
Dr. Nels A. Nelson, division of communicable diseases, state department of public health, The Relation of Gonorrhea and Syphilis to the Industrial Accident.

MICHIGAN

Max Ballin Memorial Lectures.—Dr. Russell L. Haden, Cleveland, opened the fourth annual series of the Dr. Max Ballin Memorial Lectures, April 28, with a talk on "The Clinical Approach to Hematology." Drs. Elwood A. Sharp and William H. Gordon, both of Detroit, spoke May 5 on "Evaluation of Hematopoietic Drugs" and "Blood Dyscrasias Associated with Specific Lesions in the Throat" respectively. Other speakers in the series, which is sponsored by the North End Clinic, Detroit, include:

Dr. Nathan Rosenthal, New York, May 12, The Purpuras, Hemophilia and Other Hemorrhagic States.
Dr. Raphael Isaacs, Ann Arbor, May 19, Clinical Hematologic Aspects of Disease of the Lymph Glands and Spleen.
Drs. Thomas B. Cooley and Louis D. Stern, both of Detroit, May 26, Anemias of Childhood and Pregnancy, respectively.
Dr. Richard H. Jaffé, Chicago, June 2, Clinical Interpretation of Bone Marrow Studies in Diseases of the Blood.

Society News.—Dr. Reed M. Nesbit, Ann Arbor, discussed "Urinary Tract Infections" before the Genesee County Medical Society in Flint, May 5.——Dr. Bruce H. Douglas, Detroit, discussed "Tuberculosis Case Finding and the Private Physician" before the Washtenaw County Medical Society in Ann Arbor, April 13.——At a meeting of the Oakland County Medical Society, April 7, Dr. Lawrence Reynolds, Detroit, spoke on "Roentgenological Studies of Gastro-Intestinal Diseases."——Dr. Udo J. Wile, Ann Arbor, addressed a joint meeting of the Detroit Pediatric and Dermatology societies, April 6, on "Congenital Syphilis." Dr. Perrin H. Long, Baltimore, addressed the pediatric society, May 5, on "The Treatment of Beta Hemolytic Streptococcal and Other Infections with Sulfanilamide (Prontosil and Prontylin) or Their Derivatives."——Dr. Austin A. Hayden, Chicago, addressed the Berrien-Cass County Medical Society in Benton Harbor, April 21.——At a meeting of the Muskegon County Medical Society, Muskegon, April 16, Dr. Norman R. Kretzschmer, Ann Arbor, discussed "Clinical Aspects of Endocrinology."——Dr. William S. Sadler, Chicago, addressed the Calhoun County Medical Society in Battle Creek, April 6, on "Psychiatric Aspects of Medical Practice."

MINNESOTA

Personal.—Dr. Elmer J. Lillehei, Robbinsdale, has been made director of the Hennepin County Tuberculosis Association.——Plans are under way to form a voluntary subscription fund to establish a memorial to the late Dr. Oscar E. Locken, mayor of Crookston.——Dr. David M. Parker, formerly a physician in the CCC, has been appointed health officer of Virginia to succeed Dr. John A. Malmstrom, resigned, according to the *Journal-Lancet*.

Illegal Practitioner Sentenced.—R. A. McHale, Long Prairie, was recently sentenced to four months at hard labor in the Todd County jail, following his conviction on the charge of practicing healing without a basic science certificate. According to the Minnesota State Board of Medical Examiners, evidence in the trial showed that McHale represented himself as "Dr." McHale and that he told numerous persons he was a chiropractor. The evidence showed that McHale examined patients, prescribed diets, administered manipulation and light treatments and furnished salve and pills for the treatment of diseases, charging some patients $2 per treatment and others a flat price of $10.

MISSISSIPPI

Meeting of the Thirteen County Society.—The Northeast Mississippi Thirteen-County Medical Society held its first quarterly meeting in Booneville, March 16, with Dr. Luther L. McDougal Sr., Booneville, presiding. The program included:

Dr. Emile Q. Withers, Columbus, Diseases of the Nose and Throat.
Dr. LeRoy B. Brackstone, Iuka, Acute Hemorrhagic Nephritis in Children.
Dr. Isidore Cohn, New Orleans, Differential Diagnosis and Surgical Indications in Splenomegaly.
Dr. John Gould Gardner, Columbia, Infection of the Hand.

Following a banquet, Dr. George A. Hendon, Louisville, discussed "The Public's Relationship with the Medical Profession."

NEW JERSEY

State Medical Election—Dr. Morrison Resigns as Secretary.—Dr. William J. Carrington, Atlantic City, was chosen president-elect of the Medical Society of New Jersey at its annual meeting in Atlantic City, April 28, and Dr. William G. Herrman, Asbury Park, was installed as president. Dr. Alfred Stahl, Newark, was elected secretary to succeed Dr. John B. Morrison, Newark, who resigned after fifteen years' service in the position. Atlantic City was designated as the place for the next annual meeting. Dr. Morrison, who is 71 years of age, graduated from Columbia University College of Physicians and Surgeons in 1895. Dr. Stahl graduated from Baltimore Medical College in 1906; he is 57 years of age. All communications pertinent to the society should be addressed to him at the executive offices, 143 East State Street, Trenton.

NEW MEXICO

Hospital for Crippled Children to Be Dedicated.—The Carrie Tingley Hospital for Crippled Children will be dedicated at Hot Springs, May 29, and is expected to be ready for occupancy about the middle of June. When completed the hospital will have cost about $800,000, furnished by WPA funds, state aid and the town of Hot Springs. The building is Spanish colonial in style, covering 1.8 acres floor space and so designed that another story may be added. The main section is two stories with the second floor prepared for the use of the staff only. Three wings extend from the main section of combined dining and recreation room, offices and directors' room, and an operating wing has facilities to retain the patient until he has recuperated. Speakers in the dedicatory ceremonies include Governor Clyde Tingley, Postmaster General James A. Farley and Elliott Roosevelt.

NEW YORK

Medical Women's Meeting.—The thirty-first annual meeting of the Women's Medical Society of New York will be held at the Century Club, Rochester, May 24, under the presidency of Dr. Elise S. L'Esperance. Speakers will include:

Drs. Martha E. Howe and Hayes E. Martin, New York, Glossitis Rhombica Mediana.
Dr. Margaret Warwick, Buffalo, Causes of Death in New-Born Infants.
Dr. Marguerite P. McCarthy, Solvay, Pylorus Spasm, an Infantile Allergic Manifestation.
Dr. Martha Brunner-Ornstein, Vienna, Newer Researches in Physical Medicine.

New York City

Appointments at Columbia.—The following appointments to the staff of Columbia University College of Physicians and Surgeons have recently been announced:

Dr. William H. Stewart, to be clinical professor of radiology.
Dr. George Gray Ward, clinical professor of obstetrics and gynecology.
Drs. Albert H. Aldridge and Ralph A. Hurd, assistant clinical professors of obstetrics and gynecology.
Dr. Earl E. Van Derwerker, assistant professor of clinical orthopedic surgery.
Dr. John E. Scarff, assistant professor of neurologic surgery.

Kober Medal Awarded to Dr. Park.—Dr. William H. Park, director emeritus of laboratories of the New York City Department of Health, was awarded the annual George M.

Kober medal by the Association of American Physicians at its annual meeting in Atlantic City, May 5. Dr. Park was cited for his research work in infectious diseases and immunity to them. It was announced that Dr. Rufus Cole, director of hospitals of the Rockefeller Institute, would be the recipient of the medal next year. Dr. Park, who is 74 years of age, officially retired from the department of health laboratories last year. He had been director since 1894. He also retired last year as Herman M. Biggs professor of preventive medicine with the title of emeritus at the New York University College of Medicine.

Society News.—Drs. Walter G. Lough, Herman O. Mosenthal and George J. Heuer presented papers on hypertension at a meeting of the New York Physicians-Yorkville Medical Society, March 24.——The program of the Medical Society of the County of New York, March 22, was devoted to discussion of venereal disease, with the following speakers: Drs. Howard S. Jeck, Abraham L. Wolbarst, Terry M. Townsend, Frederic Bierhoff and Charles Walter Clarke.——Drs. Leo Spiegel and Theodore Rosenthal addressed the Bronx County Medical Society, March 18, on "Modern Treatment of Syphilis" and "Modern Public Health Control of Syphilis" respectively.——Dr. Otho C. Hudson, Hempstead, was chosen president elect of the Associated Physicians of Long Island at its annual meeting recently and Dr. Charles A. Anderson, Brooklyn, became president.

OHIO

University of Cincinnati News.—Dr. Erl A. Baber has been advanced to assistant professor of psychiatry at the University of Cincinnati College of Medicine.——An anonymous gift of $20,000 has been given to the University of Cincinnati College of Medicine, to be used for equipping an "added isolation unit at the general hospital for a particular purpose."——Dr. Martin H. Fischer gave an "appreciation lecture" in the students series, May 7; his subject was "Form."

Personal.—Dr. Roy C. Rehder, assistant health commissioner of Mansfield, has been made commissioner to succeed Dr. Millard C. Hanson, who has been appointed health officer of Toledo.——Dr. Murray N. Fowler of the staff of the Athens State Hospital has been appointed medical superintendent at the Applecreek Institution for Feebleminded, succeeding Dr. Lorne W. Yule, who resigned in October 1936.——Dr. Walter M. Simpson, Dayton, was made a member of the Legion of Honor of France during the recent International Congress on Fever Therapy in New York, in recognition of his research on artificial fever.

OKLAHOMA

Society News.—Dr. Erma O. Johnson, Tulsa, addressed the Tulsa County Medical Society, Tulsa, April 12, on "Practical Endocrine Therapy in Gynecology."——The Kingfisher County Medical Society was recently organized with Drs. John T. Anglin, Dover, as president and Frank C. Lattimore, Kingfisher, as secretary.——At a meeting of the Carter County Medical Society in Ardmore, April 5, the speakers were Drs. Robert C. Sullivan, Ardmore, on "Buerger's Disease"; Charles A. Brake, Norman, "Chronic Alcoholism in the Hebephrenic Stage," and Ben H. Cooley, Norman, "Coronary Thrombosis."——At a recent meeting of the Oklahoma County Medical Society, Oklahoma City, the speakers were Drs. Carroll M. Pounders, on the panel system of medicine in England; Edward C. Mason, physiology of kidney function; Hugh G. Jeter, pathology of nephritis, and Basil A. Hayes, urology as an aid in treatment of nephritic symptoms.

OREGON

New President of State Society.—Dr. Charles E. Sears, Portland, first vice president of the Oregon State Medical Society, was elected president of the society at a meeting of the council, March 24, to succeed Dr. Thomas W. Watts, Portland, who resigned because of ill health. Dr. Watts died March 26.

PENNSYLVANIA

Campaigns Against Diphtheria.—An immunization campaign against diphtheria among children of preschool age was carried on by the Lycoming County Medical Society, May 17-22. Children of parents unable to pay will be immunized the following week, which has been designated "clinic week." It is planned to set up clinics in various centers where members of the society may perform the work. Immunization of school children was begun in Erie County, May 1, as a part of the spring and summer health round up.

Philadelphia

Personal.—Dr. Alfred N. Richards, professor of pharmacology, University of Pennsylvania School of Medicine, has been elected a trustee of the Rockefeller Foundation.

Society News.—Dr. Alphonse R. Dochez, New York, delivered a Mary Scott Newbold lecture at a meeting of the College of Physicians of Philadelphia, May 5, on "Agents of Upper Respiratory Infections."——Dr. Samuel A. Levine, Boston, was the guest speaker at the annual meeting of the Philadelphia Heart Association, April 28, on "Auscultation of the Heart." Dr. David Riesman, chairman of the executive committee, reviewed the year's work. Dr. William D. Stroud was reelected president.

TEXAS

State Medical Election.—Dr. Ernst W. Bertner, Houston, was elected president of the Texas State Medical Association at its annual meeting in Fort Worth recently. Vice presidents are Drs. Craig W. Munter, Fort Worth, Robert B. Touchstone, Lytle, and Harry L. Locker, Brownwood, and Dr. Holman Taylor, Fort Worth, was reelected secretary. The next annual meeting will be held in Galveston.

Personal.—Dr. John W. Tappan, El Paso, has been appointed health officer of the El Paso city and county health unit, succeeding Dr. Thomas J. McCamant. Dr. John W. Brown, Austin, state health officer for the past four years, has been appointed health officer of Houston. Dr. Milton C. Williams, San Marcos, has been appointed health officer of Hays County and Dr. Philip S. Joseph, Alice, reelected health officer of Jim Wells County. Dr. Jesse E. Ross Jr., Henderson, has been named health officer of Rusk County and Dr. Jack E. Frost, DeKalb, of Bowie County.

VIRGINIA

Personal.—Dr. Williamson C. Welburn, Arlington, has been appointed health officer of Arlington County to succeed Dr. Peyton M. Chichester, Clarendon, who has been appointed to the staff of the state health department.——Dr. Irl T. Riggin, Richmond, state commissioner of health, will receive the honorary degree of doctor of science at the coming commencement of the Medical College of Virginia.

Promotions at the Medical College.—The following promotions in the faculty of the Medical College of Virginia, Richmond, were recently announced:

Dr. Emmett H. Terrell to professor of clinical proctology.
Everett H. Ingersoll, Ph.D., to associate professor of anatomy.
Dr. Paul Kimmelstiel to associate professor of pathology.
Dr. Emanuel U. Wallerstein to associate professor of otolaryngology.
Dr. James P. Baker Jr. to assistant professor of medicine.
Dr. Ernst Fischer to associate professor of physiology and pharmacology.
Dr. Andrew Stephens Graham to assistant professor of surgery.
Dr. Randolph H. Hoge to assistant professor of surgery and gynecology.
Dr. Thomas D. Jones to assistant professor of pediatrics.
Dr. Kinloch Nelson to assistant professor of medicine.
Dr. James B. Stone to assistant professor of pediatrics.
Dr. George Z. Williams to assistant professor of pathology.
Dr. John H. Scherer to assistant professor of medicine.
Dr. John Blair Pitts to assistant professor of orthopedic surgery.
Dr. Donald M. Faulkner to associate professor of orthopedic surgery and chief of clinic.
Dr. Henry Page Mauck to professor of clinical orthopedic surgery.

WISCONSIN

Council on Scientific Work.—A council on scientific work has been organized to supersede the program committee of the State Medical Society of Wisconsin. Members of the new council are Drs. William S. Middleton, Madison, chairman; George W. Krahn, Oconto Falls; Henry A. Sincock, Superior; James A. Evans, La Crosse, and Eben J. Carey, Milwaukee.

New Graduate Course.—A series of graduate lectures in obstetrics and pediatrics was begun April 12. A session will be held one afternoon each week for six weeks in Janesville, Racine, Waukesha, Sheboygan and Beaver Dam. Drs. John W. Harris, professor of obstetrics and gynecology, and John E. Gonce Jr., professor of pediatrics, University of Wisconsin Medical School, Madison, are the instructors of the course which is sponsored by the state health department.

Council to Plan Venereal Disease Control.—Governor La Follette has appointed a "planning council" to further a program for the control of venereal disease in Wisconsin. Dr. William F. Lorenz, Madison, is chairman and Mr. J. George Crownhart, executive secretary of the State Medical Society of Wisconsin, is secretary of the council. The members are Drs. Cornelius A. Harper, Madison, state health officer, and Harry M. Guilford, bureau of communicable diseases, state board of health; and all members of the state medical society's committee on venereal diseases, Drs. James C. Sargent, Edward L. Tharinger and William J. McKillip,

all of Milwaukee, Gunnar Gundersen, La Crosse, and Charles W. Giesen, Superior. The work of the council will be to coordinate the forces and advise the governor with respect to developments, participation by state forces and legislation.

GENERAL

Neisserian Society Meeting.—The third annual meeting of the American Neisserian Medical Society will be held in Atlantic City, June 8, at the Hotel Senator. Dr. Thomas Parran, surgeon general, U. S. Public Health Service, Washington, D. C., will give his presidential address on "Present Needs in the Public Health Control of Gonorrhea," and the guest speaker will be Dr. John L. Rice, health commissioner of New York City, on "The Essential Elements in a Program for Control of Gonorrhea."

American Dermatological Association.—The sixtieth annual meeting of the American Dermatological Association will be held at the Skytop Lodge, Cresco, Pa., under the presidency of Dr. John H. Stokes, Philadelphia. The speakers will include:

Dr. Andrew M. Davidson, Winnipeg, Man., Use of Quinine Bisulfate in the Treatment of Lupus Erythematosus.
Dr. George W. McCoy, Washington, D. C., The Communicability of Leprosy.
Dr. Udo J. Wile, Ann Arbor, Mich., Sex Hormone Studies in Acne.
Dr. Paul E. Bechet, New York, Deciduous Skin.
Dr. Robert E. Barney, Cleveland, Zosteriform Leukemia Cutis.

Meetings in Atlantic City.—The medical alumni of the University of Pennsylvania will hold a smoker and vaudeville at 9 p. m. at the Hotel Jefferson, Atlantic City, June 9, and not the Hotel Madison as previously announced.——The joint luncheon of the Medical Veterans of the World War and the New Jersey chapter of the Association of Military Surgeons of the United States will be held at the Hotel Ambassador, June 8.——The annual dinner of the medical alumni of Northwestern University Medical School, Chicago, will be held Wednesday evening, June 9, at 6:30 at the Traymore Hotel.——The annual luncheon of Phi Lambda Kappa Fraternity will be held Wednesday noon, June 9, at the Ritz-Carlton Hotel.

Delay in Publication of Pharmacopeia Supplement.—Changes in plans for the binding of the First Supplement to the Pharmacopeia of the United States, Eleventh Decennial Revision, have caused a slight delay in its appearance, the committee announces. It was planned to issue the supplement in a paper cover enclosed in a spring back binder capable of holding similar supplements in the future. However, it has been decided to bind it in a more substantial but flexible cover. The delay in the release of the first supplement will no doubt necessitate an advance in the date when the new standards are to become official. Orders should be sent to the Mack Printing Company, Easton, Pa., or to any of the regular distributing agencies for the Pharmacopeia. The price will be $1.

Medical Library Association in Richmond.—The thirty-ninth annual meeting of the Medical Library Association will be held in Richmond, May 23-26, in the auditorium of the Richmond Academy of Medicine. Among papers to be presented will be "The Value of Old Books in a Medical Library," by Dr. Marvin Pierce Rucker, Richmond; "Plantation Medicine," Miss Mary Louise Marshall, librarian of Tulane University of Louisiana School of Medicine, New Orleans, and "Medicine and Shockoe Hill," Dr. Harry J. Warthen Jr., Richmond. William T. Sanger, LL.D., president of the Medical College of Virginia, will preside at the annual dinner, at which Dr. William W. Francis, Montreal, Que., president of the association, will deliver his official address.

American Gynecological Society.—The sixty-second annual meeting of the American Gynecological Society will convene at the New Ocean House, Swampscott, May 31-June 2, under the presidency of Dr. Frederick J. Taussig, St. Louis. Speakers will include:

Dr. Lillian K. P. Farrar, New York, Upper Pelvic Floor, and Its Importance in Total Abdominal Hysterectomy.
Dr. Harvey B. Matthews, Brooklyn, The Continuous Auscultation of the Fetal Heart by Means of An Amplifying Stethoscope (preliminary report).
Dr. Robert A. Ross, Durham, N. C., Observations Pertinent to Gonadotropic Therapy in Gynecology.
Dr. Franklin L. Payne, Philadelphia, The Clinical Significance of Endometrial Hyperplasia.
Dr. Guy L. Hunner, Baltimore, An Unusual Obstetrical Injury, Detaching Bladder and Urethra from the Symphysis Pubis and Causing Complete Epispadias.
Dr. Henry Close Hesseltine, Chicago, Biologic and Clinical Import of Vulvovaginal Mycosis.

Academy of Pediatrics.—The seventh annual meeting of the American Academy of Pediatrics will be held at the Waldorf-Astoria Hotel, New York, June 3-5. Thursday will be given over to a series of round table discussions on anemia, asthma, childhood psychiatry, common skin diseases, diabetes, eczema, gonococcic infection, meningococcic meningitis, nephritis, poliomyelitis, sedimentation rate, speech defects, treatment of empyema and vitamins. Dr. Alexis F. Hartmann, St. Louis, will speak Friday morning on "Hypoglycemia in Infancy and Childhood" and Dr. Alfred H. Washburn, Denver, "Diverse Attributes of Healthy Children." Panel discussions will be held Friday afternoon on "Present Status of Active Immunization Against Scarlet Fever" and "Present Status of Active Immunization Against Whooping Cough."

Bronchoscopic Society Meeting.—The American Bronchoscopic Society will hold its twentieth annual meeting at the Marlborough-Blenheim Hotel, Atlantic City, June 2, under the presidency of Dr. Joseph C. Beck, Chicago, who will deliver his address in the afternoon on "Standards in the Practice of Bronchoscopy." In addition to case reports, papers will be read by:

Dr. Thomas E. Carmody, Denver, Interesting Endoscopic Cases.
Dr. John D. Kernan, New York, Tuberculous Lesions of the Trachea and Bronchi.
Dr. John H. Foster, Houston, Texas, Treatment of Laryngeal Papillomatosis.
Dr. Sobieca S. Hall, Clarksburg, W. Va., Bronchoscopic Aspects of Lung Abscess.
Dr. Evan G. Galbraith, Toledo, Experimental Bronchial Obstruction.
Drs. Waitman F. Zinn and William F. Rienhoff Jr., Baltimore, Diagnosis and Treatment of Primary Bronchial Carcinoma.
Dr. Chevalier Jackson, Philadelphia, The Bronchoscope and the American Bronchoscopic Society and the Technic of Bronchography.

Meeting of Ophthalmologists.—The American Ophthalmological Society will hold its seventy-third annual convention at The Homestead, Hot Springs, Va., June 3-5. Speakers will include:

Dr. Martin Cohen, New York, Bilateral Metastatic Carcinoma of the Choroid.
Dr. Frederick T. Tooke, Montreal, Canada, Case of a Melanoma of the Iris with Microscopic Findings.
Drs. Hans Barkan and Horace Gray, both of San Francisco, The Eye and Diabetes.
Drs. Samuel Hanford McKee and Francis L. McNaughton, Montreal, Neuromyelitis.
Dr. Jonas S. Friedenwald and Robert D. Stiehler, Ph.D., Baltimore, The Mechanism of Formation of the Aqueous.
Drs. Sylvester Judd Beach and William R. McAdams, both of Portland, Maine, Benzedrine-Homatropine Cycloplegia.

At the executive session, Thursday evening, Dr. David Harrower, Worcester, Mass., will read a paper on "The Early Formation of the American Ophthalmological Society."

Mosquitoes Imported on Airplanes.—*Public Health Reports* announces the results of sixty-nine inspections made by officers of the U. S. Public Health Service at Miami during one month. The inspections were made to determine the presence of mosquitoes transported from South America and no insects were found in forty-five instances. In the other twenty-four inspections, fifty-three insects were captured and one escaped. In seven of the twenty-four inspections thirteen mosquitoes were found, ten of which were dead. The maximum number of mosquitoes found during a single inspection was three, of which two were dead. Of the thirteen mosquitoes ten were identified as follows: Aedes sollicitans, 1; Culex, species unidentified, 1; Culex quinquefasciatus, 3; Culex inhibitator, 1; Mansonia indubitans, 1; Mansonia titillans, 3. Three mosquitoes were unidentified. The report points out that, while no yellow fever mosquitoes were discovered on the inspections, the list shows that such mosquitoes might easily be brought into this country by airplanes unless adequate measures are observed to prevent their importation.

Meeting of Ear, Nose and Throat Society.—The forty-third annual session of the American Laryngological, Rhinological and Otological Society will be held at the Hotel Traymore, Atlantic City, June 3-5. Among others, the following will present papers:

Dr. C. Coulter Charlton, Atlantic City, Climate and the Upper Respiratory System.
Dr. Ralph A. Fenton, Portland, Ore., Management of Blood Stream Infections from Mastoiditis.
Drs. James A. Babbitt and Damon B. Pfeiffer, both of Philadelphia, Myxoma of the Palate and Pharynx, with Report of a Special Case.
Dr. Edmund Prince Fowler, New York, The Hearing Before and After Radical Mastoidectomy; A Plea for Less Radical Middle Ear Surgery; Fifty Cases, with Audiograms, Clinical and X-Ray Findings.

Dr. Henry Lane Williams Jr., Rochester, Minn., will present the candidate's thesis by title Saturday morning on "Otitic Hydrocephalus." The annual dinner will be held Friday evening.

Society of Clinical Pathologists.—The sixteenth annual meeting and fourth seminar of the American Society of Clinical Pathologists will be held at the Hotel Bellevue-Stratford, Philadelphia, June 2-5. Dr. Roy R. Kracke, Emory University, Ga., will deliver his presidential address Saturday morning on "The Future of Pathology." The principal speaker

at the banquet Saturday evening will be Dr. George P. Müller, Philadelphia, whose subject will be "Surgical Pathology." Speakers will include:

Dr. Richard P. Custer, Philadelphia, Sternal Biopsy and "Buffy Coat Smears" in the Diagnosis of Aleukemic Leukoses.
Reuben L. Kahn, D.Sc., Ann Arbor, Mich., The Question of Paradoxical Serological Reactions in Syphilis.
Dr. Meyer Bodansky, Galveston, Texas, The Determination of Parathormone in the Blood of Pregnant Women.
Drs. Edward C. Rosenow and Fordyce R. Heilman, Rochester, Minn., Methods of Preparation and Results from Use of Streptococcal Vaccines in the Prevention and Treatment of Respiratory Infections.
Dr. Roy S. Leadingham, Atlanta, Rat Bite Fever: Report of Five Cases.

Neurological Meeting.—The American Neurological Association will hold its sixty-third annual convention in Atlantic City, June 3-5, under the presidency of Henry H. Donaldson, Ph.D. The speakers will include:

Drs. Harry L. Parker and Adams A. McConnell both of Dublin, Ireland, Internal Hydrocephalus.
Dr. Temple S. Fay, Philadelphia, Epidural Ascending Spinal Paralysis (Spiller's Syndrome).
Dr. Louis Casamajor, New York, A Child Without a Forebrain (preliminary report).
Dr. Smith Ely Jelliffe, New York, Sigmund Freud as a Neurologist.
Dr. Tracy J. Putnam, Dr. Paul F. A. Hoefer and Mildred G. Gray, Ph.D., all of Boston, The Experimental Production of "Encephalomyelitis" by the Intravenous Administration of Coagulants.
Drs. James Norman Petersen and Joseph P. Evans, both of Montreal, The Anatomical End Results of Cerebral Arterial Occlusion (An Experimental and Clinical Correlation).
Drs. Wilder G. Penfield and Edwin B. Boldrey, both of Montreal, Somatic Motor and Sensory Representation in the Cerebral Cortex of Man as Studied by Electrical Stimulation.

American Radium Society.—The twenty-first annual meeting of the American Radium Society will be held in Atlantic City at the Chelsea Hotel, June 7-8, under the presidency of Dr. Zoe Allison Johnston, Pittsburgh. Among speakers listed are:

Dr. Henry Schmitz, Chicago, Selection of Form of Treatment in Uterine Myomas.
Drs. Eugene P. Pendergrass and Philip J. Hodes, Philadelphia, Observations on the Results of Treatment of Breast Carcinoma.
Dr. Grantley W. Taylor, Boston, Artificial Menopause in Carcinoma of the Breast.
Dr. Hugh F. Hare, Boston, Cancer of the Thyroid in Children.
Dr. George C. Wilkins, Manchester, N. H., Methods of Applying Radium Element in the Form of Needles and Tubes.
Andrew J. Ackerman, D.D.S., New York, Protective Shields in Radiation Therapy of Intra-Oral Cancer.
Dr. Orville N. Meland, Los Angeles, Treatment of Epitheliomas of the Mandibular Fold.
Drs. Harry H. Bowing and Robert E. Fricke, Rochester, Minn., Radium Therapy of Vernal Conjunctivitis.

Society News.—Dr. William J. Kerr, San Francisco, was chosen president-elect of the American College of Physicians at the annual meeting in St. Louis, April 19-23, and Dr. James H. Means, Boston, was inducted into the presidency. Vice presidents elected are Drs. David P. Barr, St. Louis; George Gill Richards, Salt Lake City, and William Gerry Morgan, Washington, D. C. The 1938 meeting will be in New York.—— Dr. Charles Phillip Miller, Chicago, was elected president of the American Society for Experimental Pathology at its annual meeting in Memphis April 21-24; Dr. Morton McCutcheon, Philadelphia, vice president, and Dr. Paul R. Cannon, Chicago, secretary. The next meeting will be in Baltimore, in conjunction with the Federation of American Societies for Experimental Biology.

National Tuberculosis Association.—The thirty-third annual meeting of the National Tuberculosis Association will be at the Municipal Auditorium, Milwaukee, May 31-June 3, under the presidency of Dr. Esmond R. Long, Philadelphia. The following, among others, will present papers, according to the preliminary program:

Drs. William H. Ordway, Mount McGregor, N. Y., and Haynes H. Fellows, New York, Fluoroscopy versus Physical Examination in the Detection of Pulmonary Tuberculosis.
Dr. Miriam E. Brailey, Baltimore, Factors Influencing the Course of Tuberculous Infection in Young Children.
Dr. Clarence M. Hincks, New York, The Psychotherapy of Rehabilitation of Patients in Tuberculosis Hospitals.
Dr. Sidney J. Shipman, San Francisco, Bronchial Factor in Cavitation.
Dr. William W. Bauer, Chicago, Measuring Health Education.
Dr. Paul P. McCain, Sanatorium, N. C., Tuberculosis in the Negro.

Thursday, June 3, there will be a symposium on the evolution of tuberculosis dispensary control. The speakers will include Drs. Jabez H. Elliott, Toronto; Herbert R. Edwards, New York; Israel Steinberg, New York, and Henry Chesley Bush, Livermore, Calif.

Association for Thoracic Surgery.—The twentieth annual meeting of the American Association for Thoracic Surgery will be at the Hotel Saranac, Saranac Lake, N. Y., May 31-June 1. Dr. Leo Eloesser, San Francisco, will deliver his presidential address on "Bronchostenotic Cavities and Other Closed Foci of Tuberculous Suppuration in the Lung." Monday afternoon an address will be given by Prof. Hans C. Jacobaeus, Stockholm, Sweden, entitled "Bronchospirometry and Its Use in Determining Indications for Thoracoplasty in Bilateral Pulmonary Tuberculosis." Other speakers on the program will include:

Dr. Gabriel Tucker, Philadelphia, Bronchoscopic Aid in the Management of Postoperative Pulmonary Complications.
Drs. Harry C. Ballon and Alton Goldbloom, Montreal, Chemotherapy in the Treatment of Streptococcus Infections of the Pleura and Chest Wall.
Drs. Richard H. Overholt and John S. Harter, Boston, The Lung Volume After Thoracoplasty.
Dr. Herman J. Moersch, Rochester, Minn., Successful Treatment of Carcinoma of the Esophagus by Means of Surgical Diathermy.
Dr. Frederick R. Harper, Tucson, Ariz., Effect of Phrenic Nerve Interruption on the Gastro-Intestinal Tract.

American Orthopedic Association.—The annual meeting of the American Orthopedic Association will be held in Lincoln, Neb., June 2 and 3 and in Omaha, June 4. Sessions in Lincoln will be at the Cornhusker Hotel and the Nebraska Orthopedic Hospital. Among the speakers will be:

Mr. Reginald Watson-Jones, Liverpool, England, The Development of Fracture Treatment in Great Britain.
Dr. Hiram Winnett Orr, Lincoln, Contribution of Orthopedic Surgery to the Lister Antiseptic Method.
Dr. Dallas B. Phemister, Chicago, Experiences with Massive Bone Graft.
Dr. Robert V. Funston, Charlottesville, Va., Dashboard Dislocations of the Hip.
Dr. Robert B. Osgood, Boston, History of Orthopedic Surgery and the American Orthopedic Association.
Dr. Robert C. Hood, Washington, D. C., Federal and State Care of Crippled Children.

The members will go on a special train Friday, June 4, to Omaha, where a clinical program will be presented by Drs. John P. Lord, Robert D. Schrock and their associates at the University Hospital. In the afternoon there will be a golf tournament at the Happy Hollow Country Club followed by a dinner.

Association for Study of Allergy.—The annual meeting of the Association for the Study of Allergy will be held at the Hotel Traymore, Atlantic City, June 7-8, under the presidency of Dr. Harry L. Huber, Chicago. Speakers will include:

Drs. Richard A. Kern, Jean Crump and Rudolf L. Roddy, Philadelphia, Scarlet Fever Immunization by Intracutaneous Injection of Scarlatinal Streptococcus Toxin.
Dr. Lewis Webb Hill, Boston, Sensitivity to House Dust and Goose Feathers in Infantile Eczema: Significance of Specific Allergens.
Dr. Ralph H. Spangler, Philadelphia, The Leukopenic Index and Differential Counts in a Case of Gastric Ulcer.
Drs. Elliott T. Thieme and John M. Sheldon, Ann Arbor, The Correlation of the Clinical and Pathological Findings in Bronchial Asthma.
Dr. Salvatore J. Parlato, Buffalo, Deficiency of Atmospheric Humidity as a Contributing Factor in Prolonged Asthma.

A round table discussion on fungi will be held Tuesday afternoon. Dr. Ernest L. MacQuiddy, Omaha, will discuss the classification; Oren C. Durham, Chicago, and Drs. Philipp Schonwald, Seattle; Samuel M. Feinberg, Chicago; Grafton Tyler Brown, Washington, D. C., the varieties of clinically important fungi found in the United States; Robert W. Lamson, Los Angeles, culturing and extraction of fungi for testing and treatment; Marion B. Sulzberger, New York, clinical manifestations of sensitivity to fungi; Harry S. Bernton, Washington, D. C., treatment, and Charles Thom, Ph.D., Washington, D. C., general remarks.

Dr. Rufus Cole Retires as Director of Rockefeller Hospital.—Dr. Rufus Cole, since 1909 director, Hospital of the Rockefeller Institute for Medical Research, has announced his retirement on account of age, effective June 30. He will be succeeded by Dr. Thomas Milton Rivers, since 1927 a member of the board of scientific directors of the International Health Division of the Rockefeller Foundation. A native of Rowsburg, Ohio, and 65 years of age, Dr. Cole took his medical degree at Johns Hopkins University School of Medicine, Baltimore, 1899. He served in various capacities at Johns Hopkins Hospital from 1899 to 1907 and at the medical school from 1901 to 1909, when he became director of the Rockefeller hospital. Dr. Cole is a member of the board of scientific directors of the International Health Division and of many national societies. He was president of the Association of American Physicians in 1931 and has been a prolific contributor to medical literature. The University of Chicago conferred the honorary degree of doctor of science on him in 1927. Dr. Rivers was born in Jonesboro, Ga., Sept. 3, 1888. He graduated from Johns Hopkins University of Medicine, Baltimore, in 1915, spending the years until 1918 on the staff of Johns Hopkins Hospital. He joined the teaching staff of the medical school in 1917, leaving in 1922 to become affiliated with the Rockefeller Institute, where he was appointed associate member in 1924 and member in 1927. Dr. Rivers was president of the American Society for Clinical Investigation in 1931 and in 1936 was awarded the honorary degree of doctor of science by Emory University, Atlanta, Ga.

Cooperation Requested in Search for Kidnaper.—The Federal Bureau of Investigation, U. S. Department of Justice, requests the cooperation of the medical profession in the apprehension of the unknown kidnaper of Charles Fletcher Mattson, 10, son of Dr. and Mrs. William W. Mattson of Tacoma, Wash. Below are reproduced two views of an artist's drawing made from oral descriptions of the kidnaper as furnished by the children who were at the home of Dr. Mattson at the time of the abduction, Dec. 27, 1936. The person who kidnaped Charles Fletcher Mattson is described as follows: age, about 30 years; height, 5 feet 7 inches; weight, 145 to 165 pounds; complexion, swarthy; spoke brokenly with slightly foreign accent; appeared to be of southern European extraction; peculiarities: did not stand erect, dimple in chin, high cheek bones, nose appeared to be broken a little below center, had hairy hands. It will be greatly appreciated if you will communicate any information you might have, or later obtain, to the nearest Division of the Federal Bureau of Investigation, U. S. Department of Justice, or to the National Headquarters of the Federal Bureau of Investigation at Washington, D. C., the telephone number of

which is National 7117. A reward of $10,000 has been authorized by Homer S. Cummings, Attorney General of the United States, for information furnished to any representative of the Federal Bureau of Investigation leading to the identification and apprehension of the kidnaper.

Impostor Impersonates Physician.—It has been established through records of the American Medical Association that an impostor has been practicing medicine for three years in Freer, Texas, using the name of Dr. Bedford F. Floyd Jr., a physician of Memphis, Tenn. In 1935 "Dr. Floyd" was reported in Freer for the fourteenth edition of the American Medical Directory. Later that year he applied for Fellowship in the American Medical Association and was accepted by reason of his membership in the State Medical Association of Texas. Several months later it was discovered that only one Bedford F. Floyd appeared in the files of the Association and that he was a member in Tennessee. As dual membership is not allowed by the By-Laws of the Association, the Dr. Floyd at Freer was asked to explain this duplication. He replied from San Antonio that he was leaving Freer and that he would visit Memphis and clear up the confusion. Inquiry of the Memphis and Shelby County Medical Society revealed that the Dr. Bedford Forrest Floyd of Memphis had lived in Kilgore, Texas, from January 1931 to September 1933 and that he had never lived in Freer. In 1931 he reported to the American Medical Association that his diploma and Tennessee license had been lost and that duplicates were issued. These have since been recovered, he reported in September 1936. The duplicate diploma was returned to the University of Tennessee; the duplicate license was used by him to obtain his Texas license. According to the office of the Texas state board, the Dr. B. F. Floyd of Freer filed information there tallying with the credentials of the Memphis physician, including that of the lost diploma. The secretary of the Brooks-Duval-Jim Wells County Medical Society reported that when the Freer man applied for membership he gave Kilgore as his previous address and the same credentials. Previously he had used the names Earl W. Morris and Calvin Grady. The following description was given by the federal bureau of investigation: age 45, stocky build, weight 192, height 5 feet 8 inches, fair skin, blue-gray eyes, sandy or blond hair, neatly dressed, wearing diamond scarf pin and diamond ring. He has small scars on the right eyebrow and on the upper lip under the nose.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 24, 1937.

The Admission of Women Students to London Hospitals

In a letter to the *Daily Telegraph*, Professor Ryle calls attention to the fact that women are still at some educational disadvantage compared to men, especially during the clinical part of their training. The women medical students at Oxford and Cambridge are not numerous, but the three London hospitals which accept women—the Royal Free Hospital (which is entirely a medical school for women), University College Hospital and King's College Hospital—are able to find room for only a certain proportion of this group. There are in fact only twelve vacancies in London for women who have previously studied elsewhere. In the case of men, all the teaching hospitals (except the Royal Free) welcome students from Oxford and Cambridge in various ways. The contrast in opportunity becomes more pronounced when it is remembered that a considerable number of men and women are not taking University degrees at all. Some nonuniversity trained men, in fact, have all the advantages of the London teaching denied to women with honors from Oxford and Cambridge, or similarly distinguished elsewhere. University College Hospital has a competitive examination, which makes it possible for a limited number of women each year to serve there. Professor Ryle therefore asks Could not some or all of the other nine medical schools in London admit a small fixed number of women annually? He can see no reason, for instance, why Guy's, St. Bartholomew's or St. Thomas's should not encourage women from Oxford and Cambridge of good academic attainments to share the advantages accorded to the men with whom they have already worked on an equal footing for three years. If each school accepted no more than half a dozen women, the present discontent would be relieved.

Replying to this letter, *Guy's Hospital Gazette* states that there are many difficulties to prevent the adoption of Professor Ryle's proposal at Guy's, where he was a well known teacher. The pressure of students is already so great there that every effort should be made to restrict their number. The *Gazette* counters with the question, Can medicine be taught with advantage to a mixture of the sexes? The article states that many aspects of medicine would be difficult to discuss before a mixed audience—at any rate in the frank and intimate manner possible in the wards today.

Professor Ryle's letter has also given rise to correspondence in the *Lancet*. Dr. Norah H. Schuster, a pathologist, welcomes Ryle's view but points out other difficulties. The success of the London schools depends to some extent on athletic prestige, and athletes, Dr. Schuster states, hate to be educated with women. Furthermore, compared with men there is a greater risk of women failing to finish the course or to practice. But Dr. Schuster thinks that the time will come when the hospitals will realize that a superior woman may be worth more to them than an inferior man. She also suggests that the larger hospitals, which are not medical schools, may find it to their advantage to take women. To this Dr. M. E. Shaw, dean of the West London Postgraduate College, replies that the question is receiving the careful consideration of the authorities of the West London Hospital.

The Sterilization of the Unfit

In the House of Commons, Wing-Commander James called attention to the report of the Committee on Voluntary Sterilization. He moved "That the government should give further consideration to the potentialities of voluntary sterilization for

hereditary defectives in accordance with the unanimous recommendations of the Departmental Committee that reported to the Minister of Health on Jan. 8, 1934." The report stated that there were in England and Wales about 300,000 defectives, of whom 200,000 were fit for community life. At present a much smaller proportion than one third were in institutions. The departmental committee recommended that voluntary sterilization should be allowed where a person was a mental defective or had suffered from mental disorder, where a person suffered from or was believed to be a carrier of a grave physical disorder that was transmissible, and where a person was believed to be likely to transmit mental disorder or defect.

Sir A. K. Wood, minister of health, said that the question raised other matters besides health, in some quarters matters of conscience and religious conviction. The number of defectives increased as the general population increased and as the local authorities became more efficient in ascertaining the existence of defectives, but it could be said with authority that there was no proof that the incidence of mental deficiency in this country was increasing. Legislation adopted in other countries was fairly new, and no results of significance could yet be assessed. The lesson learned from happenings abroad was that the advocates of sterilization should carry public opinion with them. A great deal of research was being done in this country on the subject and there was no question that opinion was growing in favor of sterilization, but there was still much conflict of opinion, particularly on religious grounds. The medical profession was by no means unanimous on the matter. It was desirable that ample time should be given for a full consideration of the whole problem and for public opinion to develop. In view of this reply, Wing-Commander James withdrew his motion.

PARIS

(From Our Regular Correspondent)

April 24, 1937.

Leprosy Treated at a Paris Hospital

The Hôpital Saint-Louis has one of the largest services in the world for dermatology and syphilology. It was not surprising, therefore, when a report was read at the March 16 meeting of the Académie de médecine on ninety-five cases of leprosy observed since Dec. 25, 1934, by Charles Flandin and Jean Ragu in their service at this hospital. When they took charge of the service there were only four cases, but the number has risen to twenty-six at the present time. In addition, they have had occasion to examine and follow, either at the hospital or elsewhere in Paris, sixty-nine other proved cases of leprosy. The authors gave the following reasons why so many (ninety-five) have been seen: 1. Every effort was made to use these patients as seldom as possible for teaching purposes, because they are very sensitive about their condition and resent being exhibited. 2. The patients have been assured that professional secrecy would be observed as to the nature of their ailment and that one would not insist on their being interned at this or other hospitals. 3. Such marked improvement followed the intravenous injection of a new composite of chaulmoogra oil and cholesterol (*Comptes rendus de l'Académie des sciences*, Aug. 31, 1936, p. 502), that this attracted many patients who keep well informed as to newer methods of treatment.

The report was made under three headings:

1. Contamination in the French colonies. The majority of the patients were infected in the colonies, either being born or having lived a long time there. The ninety-five cases included twenty-two natives, nine halfbreeds, seventeen white persons born in the colonies, forty-one white persons who had lived a variable length of time in the colonies, and six white persons who had never left France. The origin of the contamination was not difficult to ascertain. In all, there was a history of infection following sexual contacts.

2. Contamination during a short stay in the colonies. This group included individuals who remained a short time in regions in which either leprosy is endemic or it is rare, as in northern Africa. After a period of incubation, of only a few months in most but of years in some, the first clinical evidences appeared and the disease developed by successive exacerbations. The histories of four cases were given in which the stay in the colonies had been four, seven, eight and ten months respectively. The incubation period varied from eight months to twenty-five years. The Hansen bacilli were found in the leprous manifestations in all of these. Three were contaminated in northern Africa, where leprosy is rare except in certain portions of Morocco.

3. Contamination in France. Since 1923, when a case originating in the Parisian region was reported by Jeanselme, the authors were unable to find any case similar to six cases of their own, but they believe that it is more common than is generally supposed. Of six patients observed by Flandin and Ragu, the first had lived since birth (she is now 26 years old) in a Chinese colony in one of the Parisian suburbs; the second, a man of 50, belonged for some time to a hospital corps, during the World War, in which there were many Indo-Chinese; the remaining four had sexual relations with the leprous. The difference, according to the authors, in the incubation period (six months to twenty-five years) depends on how the patients were infected. Those simply living in a leprous environment had much longer incubation periods than those who had frequent sexual relations with the leprous. In the future, one must regard leprosy as an infection which can be found in persons who have never left France.

A Question of Money

In the February Bulletin of the Syndicate of Physicians of the Department of the Seine, in which Paris is situated, appeared an article entitled "A Question of Money." The entire profession in France is organized into syndicates or leagues, one for each of the eighty-six departments. These syndicates are quite independent of the medical societies proper, whose meetings are devoted to the reading of papers in the various branches of medicine. The syndicates are really public relations representatives of the organized profession. Each departmental syndicate has the right to appoint a certain number of its members to a central body or federation of medical syndicates of France, which receives a proportion of the annual dues of its constituent departmental syndicates. In the article referred to, the secretary of the Seine departmental syndicate, Dr. Barlerin, states that the question of how physicians here can earn enough to live is the most vital one at the beginning of 1937.

Even those who had laid aside a sum which seemed sufficient when they should be ready to retire find that, as the result of several devaluations of the franc, their income is inadequate to live on. Paris physicians are particularly hard hit. They see their professional income diminished as the result of various efforts to introduce state medicine, especially social insurance and the unrestricted admission of private patients to public hospitals and dispensaries. An additional burden is the increase in taxes imposed on all professional men, not to speak of the higher cost of maintaining a mode of life which the public expects of medical men in large cities. The Central Federation of Syndicates has asked for a 100 per cent increase of its share of the dues from members of the constituent departmental syndicates. Although this request was voted down by a large majority of the Seine syndicate, there have been a sufficient number of affirmative votes of the proposition by the syndicates of rural departments to impose the raise. This is more of a blow to physicians in larger centers than in country districts, where the members of the profession are less affected by the inroads on their income by social insurance, public hospitals and dispensaries.

New Books on the Use of Poison Gas in War

The almost simultaneous appearance of four books on the use of poison gas in war shows the importance of this question in France. A brief review of each of the books appeared in the *Presse médicale*, March 17.

In the first of the four books, on combat gas, chemical and physiologic properties, treatment and passive defense, by Capt. J. Couillaud, the preparation of every known form of toxic gas is given, as well as its properties and detection by chemical and physiologic methods. Then follows a discussion of the protection of the public as well as the organization of passive defense.

In the second book, on combat gas from the physiologic, medical and military points of view, H. Magne and D. Cordier, as physiologists, are more interested in the symptoms and physiopathology than in the chemical properties. The effects of the various forms of toxic gas on the different organs has been studied experimentally. The study of the physiology of respiration when gas masks are worn receives special attention. The methods of protection are placed in two groups: isolation and filtration.

The third book, by A. Guillaume, tells how to protect against air attacks. A detailed description is given of the methods to be adopted by civilians against the danger of air attacks. A summary follows of the various types of combat gas, the treatment of intoxications and surveillance of shelters and first aid stations.

The fourth book, by Colonel Cot, presents a course for those who have occasion to treat asphyxia in war or peace. The author has organized an excellent resuscitation service for firemen in Paris. A small amount of space is devoted to theoretical considerations of asphyxia and artificial respiration. The first part takes up the treatment of asphyxia in peace time. The second part reviews the methods usually employed for resuscitation and artificial respiration, especially the use of carbon dioxide-oxygen mixture and the author's own method of artificial respiration, which has proved to be efficacious here. The third part describes asphyxias in war, as in the first three books.

BERLIN

(From Our Regular Correspondent)

April 21, 1937.

Increase in Physical Endurance Through Alkalization

Professor Dennig, director of one of the clinics of internal medicine at Berlin University, has studied the interrelation of acids and physical exertion and reported his observations to the Berlin Medical Society. The tests carried out took as their point of departure the fact that work leads to the formation of acids. Previously it has been observed that early exhaustion can be induced by an artificial acidulation. Dennig attempted to demonstrate the converse; namely, that by alkalization of the organism an increased capability can be obtained. He found that recuperation did actually take place more rapidly and that physical labor could be performed over a longer period. Ten persons were subjected to the tests, which were by no means uniform. By a careful arrangement of the tests, errors that could be due to suggestion were avoided. The length of time during which exercise on a treadmill could be maintained was raised under alkalosis to forty-two minutes, whereas previously the subject was completely exhausted after twenty minutes. This favorable effect of alkalosis depends, as Dennig found, on various factors. As a result of the increased arterial carbon dioxide pressure during work the respiratory volume declines, causing a slackening of performance and the sensation of dyspnea. The acidosis produced during work in the main by lactic acid was less, because better neutralized by the previous alkalization. As there is diminished hydrogen ion concentration, the brain and musculature are protected and fatigue is warded off. In addition, quick relaxation follows the suspension of work. After thorough investigation of the manner in which the optimal artificial alkalosis may be obtained, the substances observed to be most favorable were sodium citrate, sodium bicarbonate and potassium citrate taken twice daily as postprandial powders. If secondary manifestations, diarrhea for example, appear then the dosage should be reduced. The optimal effect is obtained after two or three days. None of the powders ought to be taken within five hours preceding the work. This artificial alkalization must not be carried on for longer than three or four days at a time. After an interval of several days it may be resumed. To avoid a reaction of acidosis, the dosage is decreased gradually before the powder is discontinued. In overdosage there is danger of tetany, but if this condition appears it can be relieved in a few minutes by administration of ammonium chloride. Artificial alkalosis is in some respects the equivalent of a most rigorous training, for in the latter condition there will also be an increase of carbon dioxide pressure in the alveoli which frequently borders on tetany. Alkalosis can also be brought about by a uniform diet (milk, potatoes, vegetables) but this never reaches the level of a medically produced condition. Only soy meal, a food of marked alkalotic properties, if ingested in large quantities (of around 300 Gm.) will induce a condition in any way comparable to alkalosis by medication. Before practical application of these observations is made it will be necessary to make supplementary examinations of various physical phenomena. For example, it is yet to be determined how artificial alkalosis acts if work is continued over longer periods.

Death of Prof. Robert Sommer

The Giessen psychiatrist Robert Sommer, M.D., Ph.D., died February 2 of pneumonia at the age of 72. With him passes one of the original leaders and many-sided innovators in the domain of psychiatry and related specialties. A pupil of Wundt, Sommer became ordinarius in psychiatry at Giessen when only 30 years of age. His work was consistently characterized not only by the zeal for experimental research but by great philosophic and intellectual insight as well. Sommer interested himself in many aspects of his specialty: psychology and esthetics, examination methods of psychopathology, eugenics and study of the family, animal psychology and so on. An especially interesting treatise discussed war and psychic conditions. Sommer early recognized the significance of hereditary factors. In 1925 he organized the German Association of Mental Hygiene, which together with the German Society of Psychotherapy also founded by him had as its objective the waging of a practical campaign against the dangers of mental and nervous diseases.

VIENNA

(From Our Regular Correspondent)

March 26, 1937.

Tularemia in Austria

For about eighteen months there have been observed in Austria isolated cases of the disease first recognized in North America and known as tularemia. Several cases of the ulcerous-glandular variety, a type never before encountered in this country, were recently reported to the Vienna Physicians' Society. Prof. Dr. Kerl had the opportunity to observe a case in which a peasant, aged 51, shot a hare and while drawing the animal cut himself. Subsequently he was stricken with a disorder resembling influenza. Several other peasants of the same region also came down with the same sort of malady and in each case there was a history of a lesion sustained while handling hares. The first case was correctly diagnosed only when a hematogenic examination for tularemia showed positive agglutination. Thereupon treatment of all the other sick men was begun. Most striking was the massive swelling of the axillary lymph glands, whereas only small ulcerations appeared on the fingers and forearm. For the intracutaneous diagnostic test a suitable dilution (1:100 and 1:1,000) is necessary.

Furthermore, Dr. Bstęh has reported a small epidemic of tularemia in a rural district not far from Vienna. There were thirty-four cases, one of which was fatal. It was possible to differentiate several types: the ulcerous-glandular, the ocular, the pulmonary and, in addition, a new anginal type. The last-named began like an influenza, with acute tonsillitis and severe swelling of the cervical glands. Resolution rapidly took place. The incubation period of the disease was from eight hours to eight days. The onset was turbulent and marked by remittent fever. Curiously, a short while prior to this epidemic the district in question had been infested with incredible numbers of field mice. Examination of the viscera in a fatal case of tularemia disclosed that the lungs were normal excepting for congestion; there were degenerative changes in the liver, pus in the axillary lymph nodes and the spleen, and numerous small nodular infiltrations in which resolution was already at hand. Endothelioid cells and giant polymorphonuclears were also observed. Streak preparation showed no micro-organisms and no acid-fast rods, a condition that has previously been noted in the literature. There was no eosinophilia but marked leukocytosis.

Prof. Dr. David of the Vienna School of Veterinary Medicine also reported his own studies of tularemia. It was he who with Dr. Pilot described (March 10, 1936) the first case of the disease ever reported in Austria. He believes, however, that for the past twenty years at least there have been cases of tularemia in this country that were not diagnosed as such. The disease is extremely infectious; in spite of all precautions (rubber masks, rubber gloves and rubber gowns) a laboratory infection was reported in Vienna. Whereas in America some 6,000 cases have been reported to date, in Austria only about 200 cases have been recognized and most of these within the last four months. How animals become infected is not clearly understood; flies and ticks probably play an important part as hosts. A majority of the Austrian patients were men, chiefly hunters, dealers in game and pelterers. Cases were, however, reported among housewives and other women who had come into contact with diseased rabbits.

Interesting is the observation that the agglutinin content in the blood serum of a tularemia patient will remain abnormally high for years, perhaps for life; the maximal value is reached between the sixth and the eighth week of illness and there is a subsequent decline. Professor David recommends that tularemia be made a reportable disease and that rigorous measures be taken to prevent its transmission.

Wagner-Jauregg Honored on Eightieth Birthday

A few days ago the eightieth birthday of Prof. Julius Wagner-Jauregg was celebrated by a great number of high officials and scientific bodies. The man so honored was the discoverer of the use of malariotherapy in dementia paralytica as well as the initiator of general iodine prophylaxis of cretinism and goiter. The Austrian Society of Neurology and Psychiatry held a special session at Vienna in honor of the occasion. Almost every person of prominence in Austria attended. Professor Pötzl, who succeeded Professor Wagner-Jauregg as head of the clinic, paid appropriate tribute to the achievements of his illustrious predecessor. Fifty years ago Wagner-Jauregg conceived the idea of combating syphilitic infections with artificial hyperpyrexia. This idea resulted from the observation of an insane woman who, after the subsidence of a hyperpyrexial erysipelas, appeared virtually cured. After thirty years of systematic research and testing of various methods of inducing fever in paralytic patients (hot baths, inoculation with the virus of typhoid, recurrent fever, malaria and with tuberculin), he was able finally to bring his malariotherapeutic method to perfection and in 1917 he demonstrated before the Vienna Physicians' Society two patients who had been completely cured of dementia paralytica by the use of this method. His discovery was the result of profound observation and research. Two pupils of Wagner-Jauregg, Hoff and Silberstein, were subsequently the first to prove that the antisyphilitic defense forces of the organism wax more powerful in direct proportion to the strength of the malarial infection. Malaria bears a similar relation to all other types of bacterial infection. It is an interesting fact that the original stock of Plasmodium malariae which was placed at Wagner-Jauregg's disposal in 1917 by Professor Doerr for experimental purposes still remains lively and active after 481 person to person transfers. Moreover, studies of and experimentation with this stock culture of the plasmodium have been responsible for valuable contributions to scientific knowledge.

Wagner-Jauregg will also be remembered as the initiator of goiter prophylaxis in the Alpine regions of Austria. It was he who recommended the admixture of a small amount of potassium iodide to the common kitchen salt (about 1 mg. per kilogram of salt), so that every one in Austria is compelled to use iodized salt, and iodine free salt is to be only had under special circumstances. The results of this general administration of iodide to an entire nation have been most gratifying and they are the object of a painstaking survey undertaken by Wagner-Jauregg himself, assisted by Hausmann. The data gleaned from this survey have only just been published (*Mitteilungen des Volksgesundheitsamtes*, Vienna, 1937, No. 3). It is reported therein, for example, how in a certain mountainous region of Austria, regarded as a typical goiter zone, fully developed goiter among the school children practically disappeared after a sixteen year period during which the population used only iodized salt. Severe goiter had previously been present in 4 per thousand of the school population. In the same sixteen years there was also a 90 per cent decrease in cases of "blähals" (slight enlargement of the thyroid).

Professor Wagner-Jauregg was awarded the Nobel prize in 1927. It has been decided that the Vienna Neurologic Clinic shall henceforth and forevermore be known as the "Wagner-Jauregg Clinic" and, morever, the special commemorative gold medal that was struck in honor of the neurologist has been made the property of the clinic. It is characteristic of his lifelong aversion to "publicity" that he saw fit to avoid the recent festivities held in his honor.

BELGIUM

(From Our Regular Correspondent)

March 13, 1937.

Creation of an Order of Physicians

In accordance with a resolution passed by the twenty-eighth Congress of Professional Medicine, held at Liége last July, the Executive Committee of the Fédération Médicale Belge appointed a commission representing the various specialties. This commission was empowered to frame appropriate legislation for the creation of an "Ordre des médecins" (order of physicians). This order as contemplated will act as an official guardian and arbiter of medical ethics. It will have no opportunity to abuse its authority either by the slightest coercion of any physician in any manner whatever or by the least restriction of legitimate professional prerogatives. An outline of the proposed legislation follows:

An Ordre des médecins is hereby created in Belgium. Its status is that of a civil body. The Ordre des médecins includes in its membership all doctors of medicine, surgery and obstetrics resident in Belgium who are regularly licensed to practice the art of healing. The various councils within the order see to it that all members show a proper respect for the professional traditions of dignity, delicacy and integrity. The councils also serve to defend the honor of the medical profession. The councils are forbidden to interfere in religious, philosophical, political, linguistic and syndical controversy.

The councils are not authorized to regulate the amount of physicians' honorariums or the manner in which these shall be charged, excepting in case of a habitual exaction of exorbitant fees which goes so far as to constitute a breach of professional probity.

The members of the councils, both officers and associates, are elected for a term of four years from among physicians of Belgian nationality who are at least 35 years of age, who have held licenses to practice medicine for at least five years previous to election, and who reside in the provinces.

No member can be reelected for more than one additional consecutive term. The terms of one half of a council's membership will expire at the end of each two years. At the first election one half of the members shall be elected to serve four years, the remainder to serve two years. Each council of the order elects its officers—a president, vice president and secretary—from among its membership.

Each council of the order is assisted in an advisory capacity by the magistrate of a court of first instance who is an appointee of the crown.

There is a superior council, which numbers among its duties the pronouncement of reasoned opinions on questions of a general nature and the collation of the opinions of the various lower councils, all with a view to the establishment of a body of deontologic jurisprudence.

A council of the order is empowered to invoke the following sanctions: admonition, censure, reprimand, suspension from medical practice for not longer than one year, and absolute prohibition from practicing medicine in Belgium. A physician who has been suspended automatically loses his membership in any council and if under temporary suspension he forfeits his right to vote during the period of suspension.

The foregoing sanctions can be invoked thirty days after the accused physician has been summoned to defend himself before the proper disciplinary tribunal. He is permitted to call on one or more of the councils to assist in his defense.

The same rules are followed by the superior council. For suspension or expulsion of a member, a majority vote of two thirds of the council members present is required.

The president of a council of the order, the advisory magistrate and the interested parties may take an appeal from any decision of the council.

The provincial medical committee is apprised of all final sentences of suspension or expulsion.

The record of any disciplinary action must be accompanied by a full statement of the motivating circumstances.

Members of the councils of the order, of the superior council and of the mixed appellate committees are bound to professional secrecy with regard to all matters of which they have ex-official knowledge.

Belgian Congress of Psychiatry

At the opening session of the Belgian Congress of Psychiatry, Minister of Health Vandervelde explained the revised law for the treatment of the insane. The spirit of the new law would tend to integrate the welfare of the mental patient into the system of general welfare. The organized service should be based on (*a*) an alert medical inspection service possessed of adequate official powers, (*b*) independent observation units staffed by a competent personnel trained in the most modern technics of investigation, and (*c*) great flexibility with regard to the admission, release or maintenance of a patient at the Psychiatric Institute. All this assumes a greater confidence on the part of the public authorities and of the public in the physician's understanding of his duty to society. The new legislation would seem to foster the development of unclassified sections for patients whose internment is not legally compulsory.

Among the papers read, that of Rouvroy on "Experimental Studies of the Intelligence of Mental Patients" is particularly worthy of mention. Most writers who have studied this problem have based their observations on standards established by pedagogic psychology. Rouvroy believes that this approach is faulty on practical application. At the beginning of a psychic disturbance, the old tests reveal most frequently a complete integrity of automatized aptitudes. In this phenomenon lies a source of error, since the tests designed for pedagogic purposes consider as equal values true intelligence and old automatisms. The results, as expressed grossly by a "mental age" or a single figure, fail to represent the actual level of intelligence. It is therefore necessary to differentiate automatic and intellectual action and to make separate evaluations of each. This method represents an advance in that it provides an opportunity for objective evaluation of the patient's intellectual level before the onset of the disturbance.

TREATMENT OF MENTAL DISEQUILIBRIUM ACCOMPANIED BY ANTISOCIAL REACTIONS

Louis Vervaeck reviewed the favorable observations in the first quinquennial report on the extension of the law of social defense to persons of abnormal mentality. Of 1,072 patients conditionally released from psychopathic institutions, 256 (23 per cent) were reinterned. Only 122 (11 per cent) of the latter group were criminal recidivists. The other 113 were reinterned because of inability to adapt themselves to the living conditions arranged for them on the outside; either the mental condition had, according to a psychiatrist's report, become further aggravated or the patients had asked to be returned to an institution of social defense. Dr. Vervaeck outlined the therapeutic measures that seem to him indicated in mental cases that are accompanied by antisocial tendencies. He stressed the value of training the will power and the moral sense, readaptation to a social existence under moral guidance and regular psychiatric control, in a favorable environment.

ARTHRITIS AND ARTHROPATHIES IN NEUROSYPHILIS

Dujardin and Friart exhibited several photographs of syphilitic arthropathies and tabetic osteo-arthropathies with fractures. The pictures were accompanied by a complete study of the reactions in the blood and cerebrospinal fluid in each case. These studies show that the cerebrospinal fluid syndrome disappears on the first day; the hematologic syndrome then disappears at the same rate as the generalized chronic inflammatory manifestations.

ITALY

(From Our Regular Correspondent)

April 15, 1937.

Influenza Epidemic

The Department of Public Health recently held a meeting with Drs. Di Blasi, Frugoni, Morelli and Caronia, all of the University of Rome, to discuss ways and means for controlling the influenza epidemic that is now flourishing in Italy. Rome, with a population of 1,200,000, had an average daily mortality of sixty-one deaths during the last month, eighteen of which resulted from bronchopulmonary diseases. In Milan, with 1,000,000 inhabitants, there were 809 deaths during the last fortnight, 303 of which were caused by bronchopulmonary diseases. In some important cities of different provinces the epidemic is widespread, but the nature of the disease is benign. Complications follow only in the elderly and the mortality rate is low. According to the members of this conference, the evolution of the epidemics does not demand special preventive measures, aside from those already being taken, for controlling the disease.

The Antivenereal Crusade

Statistics on the frequency of venereal diseases in Italy were presented to the Congress of Dermatology and Syphilography recently at Rome. New regulations were promulgated by the Department of Public Health for intensifying the crusade

against venereal diseases. The support given by the government to antivenereal dispensaries will be more substantial than at present. Whenever the personnel of antivenereal dispensaries is not able to carry on serologic, microscopic and laboratory work for diagnostic purposes, the tests will be made without charge at the laboratories of hygiene and public health of the city. The care of the patients at the dispensaries will be given free, regardless of the economic conditions of the patients. Increased use of propaganda for educating the people in antivenereal problems will be an added duty of dispensary personnels. This will be done both by instructing the patients during clinical consultations and by circulation of literature. Municipal physicians must attend courses on the subject, which will be given at the dermatologic clinics of the universities.

Invisible Dermatosis

Dr. Montesano, in a recent issue of *Attualità medica*, reported studies on certain dermatoses that exist for some time before showing themselves on the skin. Cutaneous atrophy appears late in the evolution of syphilis in certain areas of the skin that never before were the seat of syphiloderma. Brocq's pseudo-area of atrophy and alopecia, which develops late in follicular and perifollicular pathologic conditions, and lichenification are also forms of invisible dermatoses. Existence of the latter is manifested sometimes by the presence of pruritus or the appearance of leukoderma following exposure of the skin to the sun. The study of this group of dermatoses is of importance because it is concerned with disorders of the skin in their relation with the organism as a whole. The skin forms a complete system which reacts as a unit to the disturbance of any of its constituents or appendages. The rôle of the skin in the production of immunity and its relation with all organic systems show that the skin lesion is but an aspect of a disease the causal factors of which may be located elsewhere in the organism. The skin is concerned with important functions and reactions. It has been called the "peripheral brain." The study of invisible dermatoses, also called cryptodermatoses, may result in solving several problems of practical and scientific value.

Deaths

Prof. Alberto Lutrario, for the last twelve years head of the department of public health in Italy, died recently. During his administration many improvements in the general hygiene of the city, the establishment of a potable water supply, public baths, new sewer systems and other public commodities and means for the prevention of diseases and of epidemics were made. He was given the gold medal with which men are honored for meritorious work in public health.

Dr. Olimpio Cozzolino, professor of pediatrics at the Bari University, also died recently. He published several articles reporting work performed on the thymus, infantile tuberculosis, rickets, spasmophilia and Barlow's disease. His textbook on pediatrics, the first edition of which was published not long ago, is already in the third edition.

Marriages

Nathan Anthony Womack, St. Louis, to Miss Margaret Elizabeth Richardson at Reidsville, N. C., January 23.

William Rosario Ferraro, Canton, Ohio, to Miss Mary Rose Freschi of Brooklyn, January 9.

Aldwin George Funderburk, Moultrie, Ga., to Miss Louise Canipe in Folkston, January 3.

John H. Matheson to Miss Helen Lucille Baker, both of Des Moines, Iowa, May 21.

Gordon N. Best to Mrs. Ann Jennings, both of Council Bluffs, Iowa, April 16.

Deaths

Reginald Knight Smith, died at his home in San Francisco, April 18, of coronary occlusion, aged 67. Dr. Smith was born in Newberg, Ala., Sept. 22, 1869. He received the medical degree from the College of Physicians and Surgeons in Baltimore in 1892; later served in the Medical Corps of the U. S. Navy, where he was a lieutenant commander during the Spanish-American War. He had practiced in San Francisco since 1905, and specialized chiefly in obstetrics. His early experience was in the Emanuel Sisterhood Polyclinic and the Fruit and Flower Mission, then in the Mount Zion obstetrical clinic, where in 1910 he became chief. He was instructor in obstetrics at Cooper Medical College during 1908-1909 and later assistant clinical professor of obstetrics at the University of California Medical School. Dr. Smith was a member of the California Medical Association and of the Pacific Coast Society of Obstetrics and Gynecology; a past president of the San Francisco County Medical Society and of the California Academy of Medicine.

Eugene Franklin McCampbell ● Columbus, Ohio; Rush Medical College, Chicago, 1912; dean, 1916-1927, professor of preventive medicine, 1913-1927, professor of bacteriology, 1910-1913, associate professor of bacteriology, 1908-1910, and instructor of bacteriology, 1906-1908, Ohio State University College of Medicine; instructor of bacteriology at the Ohio Medical University, 1903-1904; assistant in pathology at the University of Chicago during the summers of 1908-1911; assistant in bacteriology at the University of Wisconsin, 1905-1906; secretary and executive officer of the Ohio State Board of Health, 1912-1916; pathologist to the Columbus State Hospital, 1909-1911; served during the World War; president of the Columbus Academy of Medicine; fellow of the American College of Physicians; member of the staffs of the Grant, Mount Carmel and White Cross hospitals; co-author of "General Bacteriology" and author of "Laboratory Methods for Study of Immunity"; aged 55; died, May 8, of pneumonia.

James Newell Vander Veer ● Albany, N. Y.; Albany Medical College, 1903; member of the House of Delegates of the American Medical Association, 1926-1935; past president of the Medical Society of the State of New York and the Medical Society of the County of Albany; formerly clinical professor of genito-urinary surgery at his alma mater; member of the American Urological Association; fellow of the American College of Surgeons; served during the World War; consulting genito-urinary surgeon to the Memorial Hospital, Albany, Memorial Hospital, Catskill, Mary McClellan Hospital, Cambridge, and the Moses-Ludington Hospital, Ticonderoga; aged 59; died, May 15, of heart disease.

Benjamin Hobson Frayser, Lexington, Ky.; Tennessee Medical College, Knoxville, 1909; formerly associate professor of obstetrics and instructor in anatomy at Lincoln Memorial University Medical Department, and associate professor at the University of the South Medical Department, Sewanee, Tenn.; was commissioned in the medical reserve corps of the U. S. Army and the U. S. Public Health Service; was chief of the medical and surgical services of the Veterans Administration Facility; retired because of physical disability, Jan. 1, 1937; fellow of the American College of Physicians; aged 49; died, March 5, of carcinoma of the descending colon.

Gilbert Langdon Bailey, Lexington, Ky.; Miami Medical College, Cincinnati, 1893; also a lawyer; instructor in various branches at his alma mater, 1897-1905; served as a director of a hospital in Germany during the World War; at one time clinical instructor in orthopedic surgery, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois; for eight years chairman of the county school board; at one time on the staff of the Oak Park (Ill.) Hospital; orthopedic surgeon to the Cook County Hospital, Chicago, 1908-1912; aged 65; died, March 5, in St. Joseph's Hospital, of coronary occlusion.

William Gammon, Galveston, Texas; University of Texas School of Medicine, Galveston, 1893; formerly associate professor of pediatrics and medicine at his alma mater and at various times demonstrator of pathology, associate in pathology, lecturer in medical jurisprudence and lecturer in dermatology; veteran of the Spanish-American War; fellow of the American College of Surgeons; superintendent of the John Sealy Hospital, 1894 to 1896; surgeon to St. Mary's Infirmary; aged 65; died, March 9, of bronchopneumonia.

Charles Chauncey Duryee, Schenectady, N. Y.; Albany (N. Y.) Medical College, 1881; in 1892 president of the Medical Society of the County of Schenectady; mayor of Schenectady,

1898-1899 and 1910-1911; formerly health officer of Schenectady, member of the state board for criminals and feeble-minded, and sanitary supervisor of the state department of health; at various times consulting surgeon and consulting physician to the Ellis Hospital; aged 78; died, March 18, of diabetes mellitus and cerebral thrombosis.

Henry Allison Ingalls ● Roswell, N. M.; University of Texas School of Medicine, Galveston, 1898; past president of the New Mexico Medical Society and of the Chaves County Medical Society; veteran of the Spanish-American and World wars; fellow of the American College of Surgeons; professor of military hygiene, New Mexico Military Institute; visiting surgeon to St. Mary's Hospital; aged 68; died, March 29.

Irving Herbert Eddy ● Glendale, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; at one time instructor in gynecology at his alma mater and associate professor of gynecology at the Loyola University School of Medicine; associate in gynecology at the Chicago College of Medicine and Surgery, 1915-1917; aged 59; hanged himself, March 1.

Samuel Berardelli, Weirton, W. Va.; Loyola University School of Medicine, Chicago, 1926; member of the West Virginia State Medical Association; secretary-treasurer of the Hancock County Medical Society; past president of the board of education; aged 35; died, March 3, in the Eye and Ear Hospital, Pittsburgh, of arteriosclerosis and chronic nephritis.

Herman Jarecky, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1886; member of the Medical Society of the State of New York, and the American Academy of Ophthalmology and Oto-Laryngology; consulting otorhinolaryngologist to the Sydenham Hospital; aged 73; died, March 14, in a local hospital.

Walter James Clarke, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; member of the Medical Society of the State of New York; on the staff of the American Social Hygiene Association; aged 72; died suddenly, March 8, of coronary thrombosis.

Edith Esty Woodill, Waltham, Mass.; Tufts College Medical School, Boston, 1904; member of the Massachusetts Medical Society and the New England Society of Psychiatry; on the staff of the Walter E. Fernald State School; died, February 27, in Brookline, of carcinoma of the sigmoid with metastasis to the liver.

Rollin Hills ● Brooklyn; Cornell University Medical College, New York, 1905; was chief of the tuberculosis bureau of the board of health for the Bay Ridge section; on the staffs of the Norwegian-Lutheran Deaconesses' Home and Hospital and the Victory Memorial Hospital; aged 53; was found dead, March 14.

Alfred Stocker, Rock Island, Ill.; Barnes Medical College, St. Louis, 1900; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; served during the World War; aged 67; died, March 20, in St. Anthony's Hospital, of coronary thrombosis.

Norman Clarence Williams, Bandelier, N. M.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1898; member of the Colorado State Medical Society; formerly a practitioner in Denver and Florence, Colo.; aged 61; died, February 3, in Santa Fe, of acute nephritis.

Charles Henry Clifford, Braddock, Pa.; Jefferson Medical College of Philadelphia, 1887; member of the Medical Society of the State of Pennsylvania; school physician, and member of the board of health of North Braddock; aged 75; died, March 1, of chronic nephritis and uremia.

Ramey M. Baker ● Sturgis, S. D.; University of Nebraska College of Medicine, Omaha, 1931; president and formerly secretary of the Black Hills District Medical Society; aged 30; died, March 2, in a hospital at Rapid City, of streptococcal septicemia, pneumonia and cellulitis.

Frank Hinchman Clark, Brooklyn; Long Island College Hospital, Brooklyn, 1887; aged 75; on the staff of the Adelphi Hospital and on the courtesy staff of the Prospect Heights Hospital, where he died, March 3, of hypertrophy of the prostate and chronic myocarditis.

Elmer Ellsworth Ellis, Brookfield, Vt.; University of Vermont College of Medicine, Burlington, 1895; member of the Vermont State Medical Society; formerly state senator; for many years health officer and school director; aged 71; died, March 6, of heart disease.

William B. Stokes, Farmington, Ky.; University of Louisville Medical Department, 1890; member of the Kentucky State Medical Association; past president of the Graves County Medical Society; aged 75; died, February 27, in the Mayfield (Ky.) Hospital, of pneumonia.

Jesse S. Coontz, Leon, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1903; member of the Iowa State Medical Society; past president and secretary of the Decatur County Medical Society; aged 61; died, February 28, of malignant lymphoma.

Andrew Fay Currier, Cheshire, Conn.; Yale University School of Medicine, New Haven, 1880; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1881; aged 85; died, March 4, of septicemia and hypertrophy of the prostate.

James Wilmot Lawrence ● Malden, Mass.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1893; on the staff of the Malden Hospital; aged 74; died, March 4, of heart disease while aboard ship homeward bound from a vacation in Jamaica.

Rosina Rehor Wistein, Cedar Rapids, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; member of the Iowa State Medical Society; aged 69; died, February 23, of diabetes mellitus and chronic nephritis.

John Augustus Robert Moseley, Jefferson, Texas; Memphis (Tenn.) Hospital Medical College, 1892; member of the State Medical Association of Texas; president of the Cass-Marion Counties Medical Society; aged 68; died, February 26, of myocarditis.

Charles J. Kneer, Oaklandon, Ind.; Medical College of Indiana, Indianapolis, 1901; member of the Indiana State Medical Association; on the staff of the Methodist Episcopal Hospital, Indianapolis; aged 61; died, March 3, of cardiovascular renal disease.

Edward H. Salmon, Jersey City, N. J.; Baltimore Medical College, 1907; member of the Medical Society of New Jersey; for many years chief of the division of communicable diseases of the city health department; aged 61; died, February 28, of epithelioma.

Martin Leo Connors, Pittston, Pa.; Temple University School of Medicine, Philadelphia, 1919; served during the World War; formerly medical examiner for the city schools; on the staff of the Pittston Hospital; aged 45; was found dead, March 9.

James D. Schmied, New Martinsville, W. Va.; College of Physicians and Surgeons, Baltimore, 1892; formerly mayor; served during the World War; on the staff of the Wetzel County Hospital; aged 67; died, February 24, of cerebral hemorrhage.

Harris Alonzo Bolton ● Warm Springs, Mont.; College of Physicians and Surgeons, Baltimore, 1910; member of the American Psychiatric Association; medical superintendent of the Montana State Hospital; aged 53; died, March 17, of pneumonia.

Jesse Robert Haley, Brookfield, Mo.; University of Kansas School of Medicine, Kansas City, 1926; member of the Missouri State Medical Association; aged 35; died, February 14, in a hospital at Kansas City, of streptococcus septicemia.

Emery Oliver Starling Brown, Lorain, Ohio; Starling Medical College, Columbus, 1890; member of the Ohio State Medical Association; aged 67; for many years on the staff of St. Joseph's Hospital, where he died, March 4, of pneumonia.

William Thomas Williams, Natchitoches, La.; University of Louisiana Medical Department, New Orleans, 1882; past president of the city board of health and city physician; aged 78; died, February 17, of heart disease and arteriosclerosis.

Allen Lincoln Walton, Upper Sandusky, Ohio; Starling Medical College, Columbus, 1896; member of the Ohio State Medical Association; formerly member of the state legislature; aged 73; died, February 28, of influenza and pneumonia.

Agnes Douglas Craine, Smiths Falls, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1888; L.R.C.S., Edinburgh, 1889, L.R.C.P., Edinburgh, 1889 and L.F.P.S., Glasgow, 1889; aged 75; died, February 26.

Edward Vincent Colbert, Albany, N. Y.; Albany Medical College, 1890; member of the Medical Society of the State of New York; for many years medical examiner for the army and navy recruits; aged 70; died, March 2, of pneumonia.

Irvin M. Wertz, Hagerstown, Md.; Baltimore Medical College, 1903; member of the Medical and Chirurgical Faculty of Maryland; mayor of Hagerstown; on the staff of the Washington County Hospital; aged 64; died, February 23.

James Mullins Grantham ● Tampa, Fla.; Baltimore Medical College, 1898; formerly health officer of Tampa; aged 63; on the staffs of St. Joseph's and the Municipal Hospital, where he died, February 26, of a cerebral hemorrhage.

Ralph Cambern Henderson ● Erie, Kan.; Kansas City Medical College, 1899; University of Kansas School of Medicine, Kansas City, 1906; served during the World War; aged 61; died, February 17, of acute myocarditis.

Thomas D. Shotts, San Angelo, Texas; Atlanta Medical College, 1915; member of the State Medical Association of Texas; medical director of the San Angelo Sanatorium; aged 48; died, February 21, of heart disease.

Frederick A. Churchill, Seattle; Chicago Homeopathic Medical College, 1882; formerly member of the city board of health, and board of education; aged 80; died, March 5, in the Maynard Hospital, of bronchial asthma.

Ira Daniel Hasbrouck, Washington, R. I.; Albany (N. Y.) Medical College, 1896; member of the Rhode Island Medical Society; township health officer; school medical inspector; aged 72; died, March 2, of pneumonia.

Marion Marsh, Muskegon, Mich.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1895; aged 80; died, February 21, in the Hackley Hospital, of cerebral hemorrhage.

Conrad Emil Thomas, St. Joseph, Mo.; Keokuk (Iowa) Medical College, 1891; member of the Missouri State Medical Association; aged 69; died, February 26, in the Missouri Methodist Hospital, of pneumonia.

Isaac Kingsley Givens, Norfolk, Va.; Howard University College of Medicine, Washington, D. C., 1931; aged 29; died, February 9, in the Jeanes Hospital, Philadelphia, of osteogenic sarcoma of the cranial bones.

Warren V. Philbrick, Worcester, Mass.; College of Physicians and Surgeons, Baltimore, 1885; aged 87; died, March 31, in St. Vincent's Hospital, of injuries received when he was struck by an automobile.

George Leander Bayton, Philadelphia; Howard University College of Medicine, Washington, D. C., 1906; member of the Medical Society of the State of Pennsylvania; aged 59; died, March 4, of pneumonia.

Irvin Phillips, Picher, Okla.; Beaumont Hospital Medical College, St. Louis, 1887; member of the Oklahoma State Medical Association; aged 79; died, February 27, near Buffalo, Mo., of cerebral hemorrhage.

Walter Taylor Miller, Fort Payne, Ala.; Birmingham Medical College, 1907; member of the Medical Association of the State of Alabama; aged 52; died, February 27, of pulmonary tuberculosis.

Harold Altin Winter, Houston, Texas; University of Tennessee College of Medicine, Memphis, 1917; aged 44; was killed, February 22, when the automobile in which he was driving was struck by a train.

Joseph Edgar Bates, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1922; member of the American Association of Pathologists and Bacteriologists; aged 41; died, February 21.

Samuel L. Laswell, Alma, Ill.; Central College of Physicians and Surgeons, Indianapolis, 1898; member of the Illinois State Medical Society; aged 62; died, February 26, of cerebral hemorrhage.

Stanton Albert McCool, Seneca, Kan.; Ensworth Medical College, St. Joseph, Mo., 1908; member of the Kansas Medical Society; aged 54; was killed, February 6, in an automobile accident.

Noah Jefferson Goshorn, Washington, Ind.; Medical College of Ohio, Cincinnati, 1874; aged 88; died, March 31, in the Davies County Hospital, of injuries received in an automobile accident.

Alexander Hamilton Brown, Little Rock, Ark.; Illinois Medical College, Chicago, 1904; aged 62; died, March 1, in the United Friends Hospital, of a bullet wound inflicted by a burglar.

Edward Bridges, Sonestown, Pa.; Jefferson Medical College of Philadelphia, 1929; member of the Medical Society of the State of Pennsylvania; aged 35; died, March 1, of pneumonia.

Wray Adla Yoder, Buffalo, Wyo.; University of Nebraska College of Medicine, Omaha, 1929; aged 36; died, February 19, in the Sheridan County Memorial Hospital, Sheridan, of scarlet fever.

Willard Curtis Rank, Newark, Ohio; Miami Medical College, Cincinnati, 1892; formerly health officer and member of the board of education; aged 77; died, February 20, of influenza.

John Ellsworth Smith, Kansas City, Kan.; Medico-Chirurgical College of Kansas City, 1899; served during the World War; aged 68; died, February 22, of cerebral arteriosclerosis.

Adalbert Fenyes, Pasadena, Calif.; Medizinische Fakultät der Universität Wien, Austria, 1889; aged 74; died, February 22, of carcinoma of the tongue and cheek and cervical glands.

Reilly J. Alcorn, Grand Coulee, Wash.; Central Medical College of St. Joseph, Mo., 1898; also a druggist; aged 68; died, February 21, in Los Angeles, of cerebral thrombosis.

William A. Hampton, Denver; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 87; died, February 6, of arteriosclerosis, bronchopneumonia and chronic prostatitis.

Eli H. Bradford, Rock Island, Ill.; Chicago Homeopathic Medical College, 1886; member of the Illinois State Medical Society; aged 75; died, March 3, of cardiorenal disease.

Lewis E. Clark, Mansfield, Ill. (licensed in Illinois in 1880); aged 90; died, March 5, in the Mercy Hospital, Urbana, of an embolism, resulting from a hip fracture received in a fall.

Harry W. Uffelman ● York, Pa.; College of Physicians and Surgeons, Baltimore, 1907; aged 53; was found shot and killed, February 5, on the desert outside of Bisbee, Ariz.

Henry Martyn Chance, Philadelphia; Jefferson Medical College of Philadelphia, 1881; aged 81; died, February 19, of uremia, hypertrophy of the prostate and arteriosclerosis.

Ralph Ruthwan Shaheen, Flint, Mich.; Loyola University School of Medicine, Chicago, 1936; on the staff of the Hurley Hospital; aged 28; died, February 25, of diphtheria.

Henry Watters ● Newton, Mass.; Boston University School of Medicine, 1905; on the staff of the Newton Hospital; aged 55; died, February 19, of coronary thrombosis.

Charles Franklin Hope ● Shoals, Ind.; Medical College of Indiana, Indianapolis, 1896; served during the World War; aged 69; died suddenly, March 8, of angina pectoris.

Robert McKown Higley Cotton, Sioux City, Iowa; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1875; aged 87; died, February 1, of senility.

Madison Lafayette Reed, Tilden, Miss. (licensed in Mississippi in 1882); aged 84; died, February 24, at the Gilmore Sanitarium in Amory, of carcinoma of the rectum.

Jay Morehouse Blackman, Quincy, Mich.; Grand Rapids (Mich.) Medical College, 1898; Detroit Homeopathic College, 1900; aged 63; died, March 8, of heart disease.

John Thomas Middleton, Edinburg, Ind.; Medical College of Ohio, Cincinnati, 1890; bank president; aged 75; died, February 28, in Key West, Fla., of heart disease.

William Seward Manuel, Portsmouth, N. H.; University of Vermont College of Medicine, Burlington, 1885; aged 75; died, February 18, at Rye, of cardiac asthma.

Columbus C. Sheets, Ellsinore, Mo.; American Medical College, St. Louis, 1889; aged 75; died, February 23, of bronchopneumonia and cerebral hemorrhage.

Lydia Stockwell, Atchison, Kan.; Ensworth Medical College, St. Joseph, Mo., 1897; aged 89; died, February 26, in the Atchison Hospital, of cerebral hemorrhage.

James C. Hughes, Boston; Middlesex College of Medicine and Surgery, Waltham, Mass., 1923; aged 41; was found dead, February 23, of acute dilatation of the heart.

Joseph Addison Lipscomb, Memphis, Tenn.; Medical College of Virginia, Richmond, 1865; Civil War veteran; aged 94; died, February 23, of bronchopneumonia.

Henry Walter Krohn, Kane, Ill.; Rush Medical College, Chicago, 1891; aged 69; died, February 23, at Our Savior's Hospital, Jacksonville, of pneumonia.

Richard Lafayette Miller, Florala, Ala.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1895; aged 83; died, February 22, of chronic myocarditis.

Othello L. Deitch, Indianapolis; Medical College of Indiana, Indianapolis, 1890; aged 72; died, February 27, in the Methodist Hospital, of a cerebral hemorrhage.

John W. Hodge, Niagara Falls, N. Y.; New York Homeopathic Medical College, 1881; aged 85; was found dead in bed, February 18, of coronary occlusion.

Adoniram B. Darling, Los Angeles; Hahnemann Medical College and Hospital, Chicago, 1912; aged 51; died, February 2, of influenza and endocarditis.

Frederick C. Barker, Kansas City, Mo.; University of Kansas School of Medicine, Kansas City, 1907; aged 53; died, February 28, of coronary occlusion.

Ella Maud Gray, Des Moines, Iowa; Physio-Medical College of Indiana, Indianapolis, 1893; aged 76; died, February 21, at Los Angeles, of arteriosclerosis.

Gaines L. Costes, Pittsburg, Calif.; California Medical College, San Francisco, 1896; aged 64; died, February 3, of chronic myocarditis and bronchopneumonia.

Harry G. Spurrier, Brookeville, Md.; University of Maryland School of Medicine, Baltimore, 1889; aged 70; died, February 12, of coronary thrombosis.

Alfred Thomas Triplett, Fort Worth, Texas; Physio-Medical College of Texas, Dallas, 1903; aged 78; died, February 27, of coronary occlusion.

Allen C. Canfield, Toledo, Ohio; Physio-Medical College of Indiana, Indianapolis, 1882; aged 81; died suddenly, January 29, in his home near Rossford.

Robert Edward Harris, Kingston Springs, Tenn.; Vanderbilt University School of Medicine, Nashville, 1896; aged 72; died, February 13, in Nashville.

William Cornelius Horn, Pennville, Ind.; Miami Medical College, Cincinnati, 1880; aged 83; died, February 27, of diabetes mellitus and prostatitis.

Carl Gustav Kroning, St. Charles, Minn.; University of Minnesota Medical School, Minneapolis, 1933; aged 31; died, February 22, of hypertension.

Charles Winter Woods, Jerome, Ariz.; Eclectic Medical College of the City of New York, 1882; aged 78; died, February 11, of lobar pneumonia.

Edward Augustus Bemis, Batavia, Wis.; Chicago Medical College, 1888; aged 72; died, February 23, of arteriosclerosis and hypostatic pneumonia.

Oscar E. Glover, Bernice, La.; Kentucky School of Medicine, Louisville, 1896; aged 64; died suddenly, March 3, of coronary thrombosis.

Elmer G. Kriebel ● Norristown, Pa.; Jefferson Medical College of Philadelphia, 1894; aged 69; died, February 19, of coronary occlusion.

Elmer Joseph MacDonald, Boston; Medico-Chirurgical College of Philadelphia, 1898; aged 64; died, February 26, of bronchopneumonia.

Alvin P. Dewey, Elgin, Ill.; Rush Medical College, Chicago, 1884; aged 77; died, March 30, of chronic myocarditis and hypertension.

George Everson Jr., ● Brooklyn; Dartmouth Medical School, Hanover, N. H., 1885; aged 79; died, March 6, of coronary thrombosis.

Hudson Ralph Willse, Westfield, N. Y.; University of Buffalo School of Medicine, 1900; aged 61; died, February 27, of myocarditis.

George L. Summers, Huntington, W. Va.; Eclectic Medical Institute, Cincinnati, 1891; aged 68; died, February 2, of coronary disease.

Charles P. Howard, Buffalo; University of Buffalo School of Medicine, 1878; aged 82; died, February 14, of carcinoma of the prostate.

George T. Armstrong, Osceola, Iowa; College of Physicians and Surgeons, Keokuk, 1885; aged 74; died, March 3, of influenza.

Edward John Richstein, Mesa, Ariz.; St. Louis University School of Medicine, 1903; aged 56; died, February 25, of influenza.

Ben P. Sanders, Chilhowie, Va.; Medical College of Virginia, Richmond, 1880; aged 81; died, February 6, of senile dementia.

James B. Gurley, Loganville, Ga.; Atlanta Medical College, 1893; aged 75, died, February 23, of nephritis and arteriosclerosis.

Sergey Nikolaevich Baryborov, San Francisco; University of Moscow, Russia, 1908; aged 56; died, February 8, of coronary sclerosis.

Meyer Jacobstein ● New York; Long Island College Hospital, Brooklyn, 1909; aged 65; died, February 17, of heart disease.

Charles L. Muhleman, Parkersburg, W. Va.; Homeopathic Hospital College, Cleveland, 1882; aged 82; died, February 13.

Howard Webster Knight, Saco, Maine; Dartmouth Medical School, Hanover, N. H., 1899; aged 78; died in February.

G. W. Yates, Hector, Ark. (licensed in Arkansas in 1905); aged 67; died, February 18, of cerebral hemorrhage.

James B. Funk, Fort Wayne, Ind.; Fort Wayne College of Medicine, 1884; aged 78; died, in March, of uremia.

Samuel B. Smith, Cleveland; Ohio Medical University, Columbus, 1900; aged 66; died, February 3.

Correspondence

CONTRACEPTIVE ADVICE, DEVICES AND PREPARATIONS

To the Editor:—The April 3 issue of THE JOURNAL carried an editorial discussing the recent decision of the Circuit Court of Appeals for the Second Circuit in the case of *United States* v. *One Package* (86 F. [2d] 737 [1936]) and taking issue with the interpretation accorded to that case by the National Committee on Federal Legislation for Birth Control, Inc. Unambiguously entitled "Contraceptive Advice, Devices and Preparations Still Contraband," the editorial derogates the importance of the case which the National Committee has hailed as a significant victory for medical workers in the field of contraception.

The case involved the legality under the tariff act of 1930 (the correct statutory citation is 19 U. S. C. A. No. 1305; in the editorial it was incorrectly given as 18 U. S. C. A. No. 396) of a physician's importing pessaries for use in her practice. The court decided that, despite the existence of a flat prohibition of the importation of "any article whatever" for the prevention of conception, such importation was legal if the importation was for a legitimate purpose, the legitimate purpose in this case being the declared intent of an accredited physician to use the pessaries in the course of her practice to protect health and preserve life. Of the decision, the editorial asserts (1) that "outside its own circuit" it "is not binding but is only of persuasive influence" and (2) that the decision "has and can have nothing to do with the legality or illegality of the practice of contraception within any state except as that practice may involve foreign or interstate commerce or the use of the mails." The inference is that the recently asserted freedom of the medical profession from the crippling bans of obscenity statutes is chimerical and that the decision of the Second Circuit Court is of only passing importance outside the states of New York, Connecticut and Vermont, which are within its jurisdiction. For the rest, the editorial intimates that physicians are still under a disability to avail themselves of contraceptive technics.

These editorial conclusions rest on several basic misconceptions of fact. At the present time there is every indication that the disabilities of the medical profession in the field of contraception have been dissipated so far as both federal and state laws are concerned.

AS TO FEDERAL LAW

It is true that the decision of the Circuit Court of Appeals for the Second Circuit standing alone would be of only "persuasive" significance. But it does not stand alone. In the first place, two other circuit courts of appeals have clearly taken the same position of liberal construction as that adopted by the court for the second circuit: the Circuit Court of the Sixth Circuit in the case of *Davis* v. *United States* (62 F. [2d] 473 [1933]) and the Circuit Court of the Seventh Circuit in the case of *Bours* v. *United States* (229 Fed. 960, 964 [1915]). Together the sixth and seventh circuits comprise Ohio, Kentucky, Tennessee, Michigan, Illinois, Indiana and Wisconsin. Thus, three federal appellate courts, all very highly regarded, are standing together, and it is very unlikely that any other circuit court will disagree with the conclusions they have reached, especially since in the construction of federal statutes conformity of the various circuits is always sedulously strived for and almost always achieved. There has been no hint of dissension.

In the second place, the editorial fails to point out that the solicitor general openly signified his intention not to seek a review by the United States Supreme Court of the decision of the Second Circuit, and no appeal can now be taken. The decision thus stands as the last word on the subject. The central law enforcement authorities have in effect committed

themselves to accept it as final and consequently to abide by its terms. On the basis of the decision, new instructions have issued to customs officials from Washington, calling it to mind and prescribing a new procedure whereby physicians or their duly constituted agents may by the presentation of an affidavit of legitimate purpose secure the passage through the customs of contraceptive materials.

In the light of these facts and adjudications, the fear that physicians will run afoul of federal law if they use the mails or the channels of interstate or foreign commerce to ship contraceptive materials or information in the course of their regular medical practice appears to be totally unwarranted.

AS TO STATE LAW

To state that the decision "has and can have nothing to do with the legality or illegality of the practice of contraception within any state except as that practice may involve foreign and interstate commerce or the use of the mails" is to slur over a vital exception and to disregard the past effect of federal decisions of this nature on state courts. In forty of the forty-eight states, physicians are and have been free to act in the field of contraception. Of these forty, some do not have laws on the subject of contraception at all, others have laws regulating only the advertising of contraception; still others forbid the giving of advice and the selling of materials but except physicians from their prohibition. In these forty states the major legal obstacle to the proper functioning of doctors in the field of contraception was the federal law. In rural and outlying areas, lack of access to the mails and the ordinary channels of interstate transportation, often the only source of supply, may be crippling to the point of annihilation. A ruling which tends to an easier transmission of contraceptives to physicians has something vital to do with the functioning of public and private health agencies within the confines of a single state. Moreover, as to the eight states which flatly prohibit activity in the contraceptive field, the ruling is not by any means without significance. Where federal and state statutes are similar in purport, state authorities have consistently patterned their interpretations on the holdings of the federal judiciary. No book cleared through the federal customs as free from taint of obscenity has ever been made the basis for a conviction on the grounds of obscenity under a similar state statute in a state court; rarely if ever has such a book been subsequently made the basis of a prosecution although previously suspect or attacked by state law enforcement agencies. For example, although the book "Ulysses" by James Joyce had been previously made the subject of prosecution under New York law, once it was cleared through the customs by the holding of a federal court it was never again challenged. True that the eight states which have absolute and unconditional bans on contraception may legally refuse to be influenced by a federal decision; one of them, Massachusetts, however, had even before the recent decision of the second circuit evolved the same kind of liberal interpretation of an apparently unlimited prohibition. (*Commonwealth* v. *Dr. Clayman*, District Court in Chelsea, Mass., August 1935). There is no reason to suppose that the other seven will not adhere to the normal course of following the lead of the federal government in this regard, especially since every dictate of public policy and sound reasoning is on the side of conformity.

So much for what the editorial says. A word should be devoted, however, to those things which the editorial does not say. It completely fails to point out the tremendous scope of the decision of the court in *United States* v. *One Package*. The decision is particularly significant in two respects 1. It lends support to a very wide definition of "legitimate purpose," for the doctors who testified in the course of the trial included, among the factors which they thought would warrant them in prescribing a contraceptive, economic as well as physiologic ills. This testimony is contained in the printed record and is an indication of the breadth of the decision which was based on it. 2. The court assumed that the same interpretation which was here accorded to the importation statute would be accorded to the statutes dealing with the mails and with use of the facilities of interstate commerce. It is generally conceded that these three statutes ought to be construed identically, and it was so assumed by the writer of the editorial; but the decision in this respect is especially clear and comprehensive. Finally, to fail to allude to the customs ruling described above is to neglect to state an acknowledged and highly important result of the decision. Cases such as the very one commented on are from now on very unlikely even to arise, since the affidavit of a doctor or his agent suffices to insure the release of any articles which might be even temporarily detained. If the point of view of the writer of the editorial were adopted, physicians would be unable to take advantage of the freedom to which agencies entrusted with enforcement of the laws they fear to violate say they are fully entitled.

When the decision of the Second Circuit Court of Appeals is thus viewed in the setting of which it is an integral part, and the full extent of the holding called to mind, the claims made for it by the National Committee on Federal Legislation for Birth Control appear to be fully warranted. The warning to the medical profession that "contraceptive advice, devices and preparations [are] still contraband" is seen not to rest on either a sound or a thorough analysis of the present legal situation, and it can serve only the purpose of seriously impeding further progress in what is concededly an important branch of preventive medicine. In view of the seriousness of the errors made and the vital import of the problems discussed, correction should not be long in forthcoming.

FREDERICK A. BALLARD. HARRISON TWEED.
MORRIS L. ERNST. CHARLES E. SCRIBNER.
ALEXANDER C. DICK. 17 West Sixteenth Street, New York.

Legal Advisory Committee of the National Committee on Federal Legislation for Birth Control, Inc.

[This letter was referred to the Bureau of Legal Medicine and Legislation. Dr. W. C. Woodward, the director, replies:]

To the Editor:—The decision of the United States Circuit Court of Appeals for the Second Circuit, December 1936, in *United States* v. *One Package*, 86 F. (2d) 737, added nothing to decisions previously rendered by various courts further than the rule that contraceptive devices may lawfully be imported into the United States for the preservation of health. One of the three judges accepted the judgment of his associates with respect to the matter but expressed grave doubts as to its correctness. Under such circumstances, the weight that other courts will give this decision is purely speculative. Certainly it is not "a bill of rights for the medical profession," nor does it authorize physicians to give contraceptive advice "in public as well as private practice," as the National Committee on Federal Legislation for Birth Control, Inc., proclaimed. As the committee's propaganda seemed likely to bring physicians unwittingly into conflict with federal and state laws, THE JOURNAL undertook to inform them correctly concerning the situation. Nothing in the letter from the committee's legal advisers seems to sustain the broad claims made by the committee in the publicity material that it issued to the medical profession, or to do away with the necessity for a physician who desires to recommend contraception or to supply materials and devices for that purpose informing himself concerning the laws relating to contraception in the community in which he is practicing and governing himself accordingly.

W. C. WOODWARD, M.D., Chicago.
Director, Bureau of Legal Medicine and Legislation.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ALBUMINURIA IN BOY

To the Editor:—A few days ago I examined a youth, aged 18 years, for an insurance company. I could find no abnormality in the physical condition. The teeth and the tonsils were in good condition. The sinuses were clear. The chest was clear. The temperature was 98.6 F. There were no abnormal heart sounds. The blood pressure was 125 systolic, 89 diastolic. The medical history was absolutely negative. The only childhood diseases that he had were measles and whooping cough. The urine examination was as follows: specific gravity, 10.20; acid in reaction; no sugar. There was a definite white ring when examined for albumin with the nitric acid test. The insurance company also found albumin. His insurance company advised him to place himself under a physician's care for six months. At the end of that time he would be considered again for a policy. I have searched for the cause of the albuminuria and I am not able to find it. The boy has never been sick. He works hard on the farm and he would never have known that this albuminuria existed had it not been for his desire to take out insurance. I might say that the father took a policy on all the children, two boys and two girls. The 18 year old boy is the only one who showed any abnormal condition of the urine. I should like to know what kind of a program one should indicate for this boy to clear up the condition.

A. H. REISWIG, M.D., Fairmount, N. D.

ANSWER.—Obviously the first problem presented by this case is one of accurate diagnosis. The query states that the cause of the albuminuria has been searched for. But how was this done? There are two major situations that must be differentiated. Either the proteinuria is an evidence of otherwise silent renal injury (early nephritis, unless acute, is typically asymptomatic) or the albuminuria is wholly benign. There are many including the conservative life insurance medical directors, who deny the existence of any wholly benign proteinuria. On the other hand, much evidence has accumulated to indicate that so-called orthostatic albuminuria may exist for years without being the precursor of nephritis.

Orthostatic albuminuria (often also called lordotic, postural or adolescent albuminuria) is characterized by the appearance of considerable quantities of protein in the urine that is secreted while the patient is erect, with temporary cessation of the albuminuria in the urine secreted while the patient is reclining. Effort, such as walking vigorously or running, increases the albuminuria. It is found most commonly among underweight adolescents and youths up to the age of 25, and is more frequent in girls than in boys. The lordotic posture is usually but not invariably detectable. In the majority of cases the syndrome disappears spontaneously with maturity and with the gain in weight which comes at that time. There is no detectable impairment of renal function. It has been presumed that this postural albuminuria is due to torsion or pressure on the renal pedicle in the erect position with interference with the renal circulation. Similar postural effects are observed in patients with freely movable kidneys. In connection with the present case, nothing is mentioned in the query regarding the physique of the patient. The most significant evidence of orthostatic albuminuria can be obtained by comparing urine specimens voided immediately after arising in the morning (urine secreted while recumbent) with others voided after activity. In orthostatic albuminuria the early morning specimens will be completely free from albumin. It must be emphasized, however, that in Bright's disease there is a postural element which increases the proteinuria when the patient is active. Therefore careful microscopic inspection of the urinary sediment is necessary to rule out the presence of a few erythroplastids and/or casts as evidence of true nephritis.

More probable in this case is the conclusion that the albuminuria is evidence of a low grade nephritis. The query states that no abnormality in the patient's physical condition could be detected. This statement is not wholly accurate: A diastolic blood pressure of 89 is distinctly above normal for a boy of 18 years. The mean normal for this age is 76 and the maximum normal 84. The one reading is, of course, of relatively little significance, for the boy may readily have been excited. Repeated observations are absolutely necessary, and if the diastolic tension is found persistently in the neighborhood of 90 mm. or higher it may be taken as additional evidence of renal injury and impairment. Renal function studies are indicated before attempting therapy. The renal concentration test (Queries and Minor Notes, THE JOURNAL, Feb. 8, 1936, p. 484) and the phenolsulfonphthalein test are simple office procedures and should be carried out. The renal concentration test should be considered as the most sensitive index to early impairment. It is a stress procedure and thus reveals otherwise hidden depreciation of the renal reserve.

If the boy has an orthostatic albuminuria, the most important therapeutic considerations are (1) a diet adequate in protein not only to replace the protein lost in the urine but also to yield sufficient for growth and development; (2) adequate calories to correct any underweight that may exist; (3) correction of anemia, should it be present. The treatment of an early, mild nephritis is along parallel lines with the additional consideration that search of sources of injury must be thorough and complete; foci of infection, unwise dietary habits (especially the abuse of condiments), chilling and any source of intoxication require review. It is observed that the urine of such patients is frequently alkaline, whereas the normal human urine is acid. An acid-ash diet (compatible with the liberal protein intake) is preferable to an alkaline one.

TRAUMA ACTIVATING SYPHILIS

To the Editor:—A member of the company received a blow over the sternum and complained of pain in the sternal region. A temperature of 99 to 100 F. was present. This pain and temperature continued for about two weeks, the temperature usually being normal or slightly above in the morning and rising in the afternoon. Physical, x-ray and other studies failed to reveal the cause of the complaints. Fracture and tuberculosis could be excluded; finally a blood test (Kahn) was reported positive. Another man received a blow in the middle of his forehead, which caused a small laceration. This was repaired and healed well. Headaches, however, have persisted since that time. Fracture and sinus infection can be excluded. As the cause of the headache was not found a blood test was made and found positive. I should like to know whether a "latent" syphilis could be activated by such seemingly insignificant trauma or by any trauma. Both men were well prior to the injuries and there was no history of syphilitic infection. If published please omit name.

M.D., Michigan.

ANSWER.—There can be no question of the importance of trauma as an unfavorable influence in syphilis from the beginning to the end of the infection. It is an axiom of the older clinical syphilology that one may always find latent or concealed syphilis becoming outspoken at a locus minoris resistentiae. The experimental evidence developed by Chesney and by Greenbaum and Madden tends to indicate that the reaction induced does not necessarily involve the actual presence of Spirochaeta pallida and that the local tissue response is not necessarily that of gummatous breakdown, as clinical experience alone would seem to suggest. Thus it is possible for a blow on the head to give rise to the onset of symptoms of dementia paralytica and pari passu of other seemingly remote symptomatic revivals of what had up to the time of injury been apparently a latent infection. Thus the fever in one patient and the headaches of the other are quite within the range of symptomatic lighting up of a latent syphilitic infection producible by seemingly minor trauma. Klauder and Solomon have gone extensively into the medicolegal status of the relation of trauma to dementia paralytica and no doubt the principles applicable there could be given wider significance were compensation commissions as well as industrial medical staffs more disposed to submit the problems involved to inquiry and adjudication. Gougerot and Clara have pointed out that every type of injury, mild or severe, sudden or prolonged, single or repeated, may serve to excite reaction on the part of a syphilitic infection.

It does not, however, follow that every trauma invariably gives rise to syphilitic reaction in a victim of the disease. It is therefore necessary in all cases to exclude rigorously by the most careful examinations all collateral possibilities. As head trauma is particularly known for its ability to revive or activate syphilis of the nervous system, a spinal fluid examination might well be considered in order if persistent headaches follow trauma in a case of latent syphilis. The same rule can properly be applied to the latency of a patient with fever, for in no case should the mere recognition of a positive blood serologic test for syphilis stop further investigation of the extent and character of the involvement for which the disease may be responsible. Only after an adequate investigation, which should certainly include a spinal fluid examination in cases like this, is it justifiable to institute a therapeutic test. It is discreet, to say the least, to begin such a therapeutic test with a heavy metal such as bismuth rather than with one of the arsphenamines, even though the spinal fluid is negative—for localized gummatous and vascular syphilitic lesions of the nervous system are not infrequently accompanied by negative spinal fluid examinations and yet may be flared up to disastrous or near-disastrous complications by the therapeutic shock administered by injudiciously used arsphenamine.

FATALITY FOLLOWING INJECTION OF VARICOSE VEIN

To the Editor:—A married woman, aged 41, white, a quadripara, had smallpox at the age of 22, measles at 14 and influenza in 1918. The functional inquiry brought negative replies except for dizziness on sudden change of posture. Examination in 1924 was essentially negative except for the notation of a "slightly rapid pulse." The blood pressure was 130 systolic, 86 diastolic. Later parts of the record noted "heart o. k." several times. My own record begins in 1931 and was for pregnancy. There is nothing of any further significance except for the same complaint of dizziness on sudden change of posture and increasing difficulty with varicose veins. Early in 1934 I began a series of vein injections using quinine and urethane at the start and later changing to 5 per cent sodium morrhuate. The patient had a total of twelve injections, of which probably one half were of sodium morrhuate. In 1935 I again took care of her through a pregnancy with nothing more significant appearing than some edema of the ankles and trouble with the remaining varicosities. She was delivered normally in March 1935. The blood pressure during that pregnancy ranged from 138/80 to 145/90. A few days ago she came in and had several small varicose ulcers on one leg. It was evident that the internal saphenous vein was open from the ankle up. This vein had been well occluded, I thought, at the end of the treatments in 1934, but at any rate it was open the other day. I prepared to give her an injection of sodium morrhuate. I used a fresh 5 cc. (5 per cent solution) rubber capped vial (Biron Company, Kansas City, Mo.). The vein was easily entered. A small amount injected caused the complaint of severe burning in the vein, so I stopped and pulled back the plunger. It was still in the vein, so I injected a little more. The pain was again severe, so I stopped. With the blood in the syringe it was hard to say the exact amount injected, but it was something less than half of the 5 cc. She reacted rather queerly, seeming somewhat faint and complaining of very severe pain all the way up the vein and even into her back. I had her lie down and kept her at the office for two hours. It was soon noticeable that the entire foot was very blue and cold, the discoloration extending toward the knee and, of course, getting less farther up. The pulse was rather weak and rapid at times, so I gave her 0.5 cc. of 1:1,000 epinephrine. After two hours she seemed much better and ready to go home. I helped her out to my car, intending to take her home, but just as we got to the car she went "out." I managed to get her leveled out between the seats and gave her the other 0.5 cc. of epinephrine. She was out so deeply that the bladder was emptied. Not wanting to risk further attacks, I got the ambulance and as soon as she had brightened up a bit I moved her on the cot and took her to my home and put her to bed. She was improving rapidly by this time and had not been lying in bed until she seemed quite all right. The pulse, the blood pressure and the color were all good and incidentally the foot was now warm and of natural color. About four hours later her relatives became rather urgent about taking her home as she felt all right. I was reluctant to let her go but could not see any reason for insisting that she stay, so after trying her in a chair a while I helped her walk a few feet to the car. We were no more than in the car when she went out again. I hurried her back to bed (she returned to consciousness rather quickly but remained in shock) and I used 0.5 cc. of epinephrine and digalen (1 ampule intravenously) and morphine and heat to try to bring her out of her shock, but she just kept going deeper and died about two hours later. The digalen was just a forlorn hope. I realized that it was not particularly indicated but I was desperate and nothing else seemed to be helping. I also gave some 50 per cent dextrose intravenously. The only symptoms I can describe during that period are very rapid, weak pulse, often barely perceptible at the wrist, pallor, and toward the last cyanosis, sweating and retching. I wrote "shock probably anaphylactic" on the death certificate. It was certainly shock but could it have been anaphylactic? Is there such a thing as sensitization to sodium morrhuate? Or is it possible that this solution has become toxic in some way? I have two more of the ampules and I should like to know where I might send them for analysis. I do not know whether this story will give you enough to go on to allow you to voice an opinion, but I hope so, and I also hope that some benefit to others may come from the case. It broke me up badly to have it happen but I acted as it seemed best at the time.

M.D., Nebraska.

ANSWER.—In view of the fact that the general history of the patient up to the doctor's record in 1930 was negative, there was no contraindication in the treatment of the varicosities. The dizziness mentioned was probably due to delayed orthostatic blood pressure response, caused in the act of stooping, possibly an irritable carotid sinus. Quinine and urethane have the most frequent systemic reactions of any of the sclerosing solutions. Patients have gone into shock after the injection of 2 cc. of quinine and urethane, and the blood pressure has dropped. The lowest noted was systolic 58/0 ? ?. However, there was a return to normal in the course of an hour or so.

The recent repeated treatment with sodium morrhuate certainly was not contraindicated. Undoubtedly the small amount injected may have induced the initial shock, but the extreme repeated collapse mentioned is not an ordinary experience. Sodium morrhuate may have produced an allergic reaction as any drug will do in certain individuals.

We cannot draw any definite conclusions from these reported cases as to the advisability of discontinuing sodium morrhuate or any other sclerosing reagent, as there is evidence that any type of drug may produce anaphylactic reactions, and these reactions are extremely rare compared with the large number of injection treatments given.

There is a remote possibility that this patient had a congenital septal cardiac defect and that following the vein injection a thrombus formed and became dislodged, immediately passing from the right to the left side of the heart and occluding a coronary artery, resulting in a painless occlusion.

There is also a possibility of pulmonary embolism with atypical symptoms, particularly in the second attack. Also there is a possibility of some chemical change in the solution injected. If solution from the same bottle is still available, one might try its effect on an animal.

SYPHILIS WITH SENSITIVITY TO METALS

To the Editor:—A woman, aged 27, had latent untreated syphilis. She gave a history of mucous patches on the genitalia six years ago and two miscarriages shortly thereafter. I began antisyphilitic treatment with weekly injections of neoarsphenamine, the first dose 0.3 Gm., the second dose 0.45 Gm., and the remaining doses 0.6 Gm. Following each injection the patient vomited her meals for a period of about twenty-four hours. After the fourth injection of neoarsphenamine, a typical picture of agranulocytosis developed: high fever, areas of necrosis in the gums involving also the jaw bones, and a blood picture of 1,200 white blood cells and 4 per cent polymorphonuclears. Response to pentnucleotide and liver extract was prompt and the patient recovered in a week. She was then put on saturated solution of potassium iodide 45 minims (2.8 cc.) daily and weekly intramuscular injections of bismuth salicylate in oil 2 grains (0.13 Gm.). Within a month she lost appetite, she had a brassy taste in her mouth, and a blue line appeared on the gums. The patient is apparently hypersensitive to arsphenamine and has poor tolerance for bismuth. Could you suggest a course of treatment that would be safe and at the same time effective against the syphilis? Please omit name.

M.D., Michigan.

ANSWER.—The intolerance to the metals which this young woman has displayed is sufficient reason to discontinue all antisyphilitic treatment for the time being. It is the usual experience that a patient who develops an agranulocytosis as a complication of treatment with neoarsphenamine is also intolerant to the other metals used in the treatment of syphilis. The tendency to react to these drugs may disappear within six months or a year, at the end of which time small doses of bismuth or mercury, one eighth or one sixth of the average dose, may be tried with caution, but one drug being administered during the course. The leukocyte count in such a patient is often an indicator of impending reactions, and the appearance of a leukopenia should be the warning sign to stop treatment again. If reactions are produced by these drugs in small doses, the avoidance of treatment is warranted.

The question of this patient's infectiousness and the likelihood of the syphilis progressing are for the time being of secondary importance. As she has had the infection for six years, there is small possibility of her transmitting the disease, and because she is in the latent phase of syphilis, the likelihood of her developing clinical evidence of syphilis within a year is remote. The patient should, however, be cautioned forcibly against becoming pregnant.

NEUROCIRCULATORY ASTHENIA AND CARDIAC NEUROSIS

To the Editor:—An executive, aged 61, who has always enjoyed excellent health despite the fact that he always worked at high pressure, recently received a severe shock in the accidental death of his favorite son in an automobile accident. Since then he has had pain in the precordial region and at times, even in the dead of night, is apprehensive. I am unable to find any evidence of heart involvement and careful examination shows no evidence of focal infection except for two dead teeth. A rough Schneider test reveals:

	Pulse	Blood Pressure Systolic	Diastolic
Prone	70	120	72
Sitting	72	120	72
Standing	74	120	74
Immediately after exercise	126	170	76
Three minutes after exercise	74	124	70

When he arrives at our office his systolic pressure varies from 114 to 150 and I am in a quandary as to what type of treatment to institute. A trip to the sea shore only resulted in an increase in symptoms and he returned home to "take care of the tag ends" of his business. Any suggestions you may give me to stabilize his vascular system will be deeply appreciated. Please omit name.

M.D., Wisconsin.

ANSWER.—The diagnosis in this case seems to be that of neurocirculatory asthenia and cardiac neurosis dependent primarily on fatigue and the nervous strain from the severe shock caused by the accidental death of the favorite son. There is no evidence of heart disease, although at the age of 61 one must be very careful to rule out such evidence, the discovery of which would be of some importance in the production of symptoms and to help in regulating the patient's life in the future. For the sake of completeness, an electrocardiogram should be taken.

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In the absence of evidence of heart disease the prognosis as to longevity is probably good, although one would like to know the longevity of the parents and grandparents.

Certainly in the way of treatment sympathetic reassurance in repeated doses, a long holiday, and a reform of his way of living are the measures to be recommended. The holiday should be in some place where much pleasure and leisurely distraction are possible.

TOXIC OR RHEUMATIC HEADACHE

To the Editor:—About ten months ago while employed at a soda fountain, the patient noticed a sensation in his head, close to the surface, as though something were crawling about. This sensation was confined to a definite area about 3 cm. in diameter and about 3 cm. to the right of the midline and a line corresponding to the external auditory meatus. This sensation continued for about a month, when it changed to a dull aching feeling. About two weeks after the original onset and before it had changed to a dull ache, he would notice a feeling of tingling and numbness in his right upper extremity. This feeling in his right arm would come on only while he was reclining, as before going to sleep or on awakening from sleep, and would not be experienced while he was up and around working. These sensations in his arm lasted for only about two weeks and have never recurred. The dull aching feeling in his head however has persisted, although it has been relieved from time to time by sedatives. His past history included measles and chickenpox in his childhood, appendectomy in 1928 and pneumonia in 1930. As he remembers it, the attack of pneumonia did not include meningeal or encephalitic symptoms. His family history is negative. Both of his parents and his one brother are living and well. The patient is a white man, aged 28, weighs 160 pounds (73 Kg.), is about 5 feet 11 inches (180 cm.) in height and has a blood pressure of 112 systolic, 68 diastolic, a pulse rate of 84 and normal temperature. There are no palpable masses in the cranium and no tenderness on percussion over the area involved. The eyes reacted equally to light and in accommodation. The eyegrounds appeared normal, though very satisfactory views were not obtained as the eyes were not dilated. The ear drum on the right side was dull, with only a suggestion of the light reflex remaining. The tonsils appeared necrotic, as though chronically inflamed. He had one carious tooth, but this was extracted a week or so before. There were no palpable cervical glands nor was there any palpable enlargement of the thyroid gland. The heart, lungs and abdomen, as well as the extremities, were normal. The Romberg sign was negative and the deep reflexes all appeared normal. There was no disturbance of the motor, stereogenic or kinesthetic senses. Red blood cells numbered 4,250,000, hemoglobin was 90 per cent, and the Wassermann reaction has been repeatedly negative. I should like your suggestions as to diagnosis and treatment. YOUNG SAM JENKINS, M.D., Taft, Texas.

ANSWER.—From the dearth of evidence listed it would seem unlikely that the patient has an organic disease of the central nervous system. There may be a definite relationship between the dull aching pain over the right side of the head (parietal scalp) and the infected tonsils. This condition is known as an infectious or rheumatic headache. In some of these cases one is able to palpate small tender nodules over the involved area or in the tissues along the back part of the neck. The treatment is removal of all foci of infection and the giving of some form of acetylsalicylic acid, usually from 1 to 1.3 Gm. a day for a period of five or six weeks. Copious amounts of liquids should be taken daily. Occasionally multiple sclerosis starts off with numbness and tingling in one or two extremities but in this condition the paresthesias are constant until improvement occurs.

SKIN TEST FOR PREGNANCY

To the Editor:—Please furnish me with information on the reliability of the skin test for the diagnosis of pregnancy, as described by Gilfillen and Gregg, using intradermal injection of antuitrin-S. What is the approximate percentage of error in this test and in the Friedman modification of the Aschheim-Zondek test? Please omit name.

M.D., Virginia.

ANSWER.—The work of Gilfillen and Gregg has not been verified by other observers. In a series of more than 100 cases, the reports of which are now being prepared for publication, the value of the test as a reliable indication of the presence or absence of pregnancy is doubtful. A communication from the men doing this work indicates an approximate error in known pregnancies of 10 per cent, in nonpregnant women of 40 per cent (positive tests having been obtained on the urine of menstruating women), and a group of tests on male urine showed a 50 per cent error. From such figures it is difficult to feel that such a test can be used with any amount of satisfaction.

The Friedman modification of the Aschheim-Zondek test is a reliable procedure, showing correct results in about 98 per cent of checked cases. At present it is felt that for the most reliable and satisfactory tests for pregnancy we must rely on the Aschheim-Zondek (99 per cent correct) or Friedman tests in spite of their more complicated technical workings.

WORRY OVER SIZE OF SEX ORGANS

To the Editor:—A white man, aged 37, a cab driver, strong and healthy, is developing a neurosis through intensive brooding over the fact that his penis and testes are somewhat smaller in size than the average. He fears this denotes "lack of manhood." He appears normal on general physical examination and all routine laboratory procedures. Detailed genitourinary examination reveals no abnormalities except that the penis, scrotum and testes are all somewhat undersized. There is no history of venereal infection, parotitis or any disease or trauma specifically affecting the genitals. He is sexually normal in every way, the semen containing an abundance of live active spermatozoa. Do you think intensive treatment with gonadotropic extract of pregnancy urine would stimulate the genital growth in this case to any appreciable extent?

M.D., District of Columbia.

ANSWER.—It is an exceedingly common experience for a sexologist to be consulted by men who are sexually normal but who worry because their sexual organs are smaller than those of other people. They are especially ashamed when using a public bath and fear that others will notice their small genitals. The patient will be comforted by being told that the penis has two functions, that of urination and that of sexual connection. If it can perform both these functions, it is to be considered normal. In other words, the patient must not worry how small the organ is in the ordinary condition as long as during connection it gets large enough to penetrate the female genitals to his and his partner's satisfaction.

As to the use of gonadotropic substance, it is doubtful whether it would have any effect on the size of the genitals in a man of 37.

TREATMENT OF PHLEBITIS

To the Editor:—One year ago last December a patient came to my office complaining of pain in the right leg following a hunting trip of a week's duration. Examination revealed an early phlebitis of the right leg. The patient was confined to bed with elevation of his extremities and application of dry heat to the extremity. That night the patient had an embolus to the left lung causing frothy blood-tinged expectoration, pain in his left chest, dyspnea, cough and increased pulse rate. Following this a left pleural effusion caused so much discomfort and dyspnea that aspiration was necessitated, resulting in withdrawal of at least 1,000 cc. of serosanguineous fluid at each aspiration. The phlebitis of the leg advanced proximally through the saphenous vein and thence to the iliacs, crossing over to the left thigh and leg and involving both superficial and deep veins. Later the condition advanced to the deep pelvic veins and anterior abdominal veins. This resulted in marked tenderness in the patient's abdomen and back. Absolute rest was maintained for at least four months before the condition abated at all. Later the patient was fitted with elastic stockings and was gradually removed from bed. After a while he was able to get around in a wheel chair. Later he could go about on crutches. He did not have fever, his general nutrition was good and he had no symptoms of further involvement. He then decided to take a short trip to a nearby town, where he had another attack of phlebitis of the anterior abdominal wall. He was immediately confined to bed in a hospital by another physician and kept there for more than a month until this attack abated. He was allowed to return home and had been here for about two weeks when he had another acute attack of phlebitis in the left thigh and leg. He is now in bed again under an electric heat cradle with slight elevation of the legs. He has been receiving additional supportive treatment to maintain his nutrition and prevent anemia. He is quite discouraged, as any one would be after such a long siege of sickness and treatment. He wonders whether he will ever be well again. I am asking for any other therapy that might be given to avoid any further attacks or flare ups of this condition. I have never resorted to any intravenous medication of any sort as all my teachings and readings from authoritative sources have discouraged me in this.

M.D., Wyoming.

ANSWER.—This patient must undergo a thorough examination for possible sources of infection. The tonsils should be inspected and, if necessary, massaged to reveal infection. If they have been removed, remaining stubs should be searched for, as they are often apt to produce absorption. Complete dental x-ray films should be inspected for root abscesses, dead teeth and incomplete fillings. In a case like this, even doubtful teeth should be sacrificed. The prostate must be massaged and a prostatic culture obtained. The thrombophlebitis can also originate in abdominal infections, such as appendicitis or cholecystitis may harbor. He could also have had an ambulatory type of typhoid or paratyphoid infection, which is sometimes followed by phlebitis. Even after all suspicious foci of infection have been removed, attacks may recur following unusual physical strain or injury. The heart must be carefully examined for the possibility of a latent endocarditis, which may follow repeated attacks of deep thrombophlebitis. The course and subsidence of the process may be followed by sedimentation rates. Therapy should consist of thorough eradication of foci and immobilization until the pulse, leukocyte count and temperature have been normal for at least ten days. Small doses (120 roentgens with heavy filter) of x-rays over the areas of phlebitis often hasten the termination of acute attacks.

DIAGNOSIS OF SYPHILIS FROM SEROLOGIC OBSERVATIONS

To the Editor:—A white youth, aged 20, seen Aug. 11, 1936, because of gonococcic infection of the urethra, had a routine blood examination which showed a 3 plus Kahn reaction. He was hospitalized in another city and was under treatment by another doctor in July 1936 because of extensive trichophytosis of the feet. Physical examination there showed a slight watery urethral discharge, negative for gonococci, present only in the morning, and a few small swollen glands in each groin. Blood tests taken there were Kahn 1 plus and Kahn negative. Physical examination August 11 showed a gonococcic infection of the urethra, a few small palpable glands in each groin, and a mild trichophyton infection of the toes of both feet. The physical examination was otherwise normal. A physical examination August 17 gave the same results. There were no penile sores or scars. Nothing on the skin or mucous membranes was suggestive of primary or secondary lesions. The eyegrounds appeared normal. The heart and central nervous system were normal. Two subsequent examinations have been normal. The patient admits frequent sexual exposures but denies ever having had any sores on the penis, lips or body. He does not recall having had any body rash except measles at 8 years of age. Both his father and his mother died about nine years ago, and he is not very clear about their history. What history is obtainable, however, could fit with that of syphilis. The father died at 44 of "heart failure." He was sick for two and one-half years. He had a stroke at 41 affecting the left side of the body. His mother died at 44, having been a mental case for about one and one-half years. One brother is living and well. No brothers or sisters have died in infancy. So far as the patient knows, the mother had no miscarriages or stillbirths. The patient received sixteen weekly intramuscular injections of a bismuth compound from Sept. 28, 1936, to Jan. 1, 1937. No other treatment of an antisyphilitic nature has been given. The blood became negative after the third injection of bismuth and has remained so except for one doubtful reading. Incidentally, the trichophytosis cleared up at about the same time the blood became negative. Blood examinations were made as follows:

Laboratory 1.....	7-28-36	Kahn 1 plus	
Laboratory 1.....	8- 6-36	Kahn negative	
Laboratory 2.....	8-17-36	Kahn 3 plus	
Laboratory 2.....	8-24-36	Kahn 3 plus	
Laboratory 2.....	8-31-36	Kahn 1 plus	
Laboratory 2.....	9- 8-36	Kahn 3 plus	
Laboratory 2.....	9-14-36	Kahn 3 plus	
Laboratory 3.....	9-14-36	Kahn 3 plus	Wassermann neg.
Laboratory 4.....	9-14-36	Kahn 3 plus	Wassermann neg.
Laboratory 2.....	9-28-36	Kahn 2 plus	
Laboratory 2.....	10-26-36	Kahn negative	
Laboratory 2.....	11- 2-36	Kahn negative	
Laboratory 2.....	11-30-36	Kahn doubtful	
Laboratory 2.....	12- 7-36	Kahn negative	
Laboratory 2.....	1- 4-37	Kahn negative	

Spinal fluid examination: Laboratory 3, 9-14-36, cells 17, Kahn negative, Wassermann negative, globulin slightly positive, colloidal gold 0000000000. Is a diagnosis of syphilis justified from the results of the blood tests and reversal to negative with three injections of the bismuth compound? If so, what plan of treatment would you recommend?

M.D., Connecticut.

ANSWER.—The serologic reactions do not form sufficient ground on which to warrant an unqualified diagnosis of syphilis. The absence of a history and clinical manifestations of syphilis adds weight to the suggestion that the serologic reports are nonspecific or false positives. The majority of serologists do not believe that nonspecific positive tests occur; they prefer to believe that the serologic test has such a high degree of specificity that nonspecific or false positives do not occur. Clinicians, however, repeatedly see positive serologic reports of nonspecific nature.

For the case in question it is suggested that a specimen of blood be drawn, divided equally into two parts and each half sent to a different laboratory. If both laboratories report positive tests, treatment with neoarsphenamine and a bismuth compound should be continued. If the tests are reported negative, the patient should be placed on observation and the tests repeated in six months. The need for treatment in the future will be dependent on the subsequent serologic reactions.

USE OF CALCIUM AND COD LIVER OIL IN PREGNANCY TO PREVENT DENTAL CARIES

To the Editor:—Is there conclusive evidence that the use of calcium and cod liver oil during pregnancy prevents dental caries in the mother? In a woman prone to dental caries but otherwise completely healthy from every standpoint and examination, does the prolonged use of calcium and vitamin D products prevent or retard caries? Please omit name.

M.D., New York.

ANSWER.—It is difficult to produce "conclusive" evidence that the use of calcium and cod liver oil during pregnancy prevents dental caries in the mother. In spite of this, several authors have expressed definite opinions on this subject. Vignes (*Progrès méd.* **63**:477 [March 24] 1928) from a study of the literature and his own experience maintains that an insufficiency of calcium leads to dental caries. Richardson (*Illinois M. J.* **69**:453 [June] 1931, **65**:367 [April] 1934) states that dental caries and brittleness of the teeth during pregnancy may be improved in ten days by the use of viosterol and absolutely and completely arrested in two weeks when adequate dosage is employed. Dentists requested to check up on these observations reported an increased hardness in the carious surfaces after viosterol. This hardness, according to Richardson, represented a recalcification of the decalcified dentin.

There is abundant evidence from the work of Maxwell and Miles in China and of Green-Armytage in India and others that osteomalacia is a deficiency disease and that the main deficiency is a lack of vitamin D. This disease may be stopped and cured during pregnancy provided a proper supply of vitamin D and calcium is given.

Danforth (*Illinois M. J.* **69**:219 [March] 1936) states that vitamin D influences growth both in laboratory animals and in man. Lack of this vitamin results in deficient calcification, causing the production of soft, fragile, bony structure. Vitamin D exerts a definite effect on calcium and phosphorus absorption and for this reason an adequate supply should be provided for the pregnant woman. In warm weather, simple exposure to the sun provides an efficient and inexpensive method of supplying the needed vitamin D, provided sufficient precursor is present in her own tissues, but in winter, particularly in the colder parts of the country, the administration of viosterol is of great value, especially if combined with calcium and phosphorus.

In view of the foregoing opinions and especially because the possibility of overdosage of these substances is remote, this patient who is prone to dental caries should be given an abundance of calcium and vitamin D.

HYDROCELE

To the Editor:—An 8 year old boy was operated on for hydrocele, which after about six months has returned. Could satisfactory results be expected from injection therapy? As the patient has a slight allergic history, what preparation could best be used? Should a skin test be done before injection?

M.D., Connecticut.

ANSWER.—It is unusual to have a hydrocele recur after a radical operation. The question arises whether the patient informed the doctor correctly; it is possible that the hydrocele was tapped and not operated on. If the patient has a recurrence he should be operated on and not have injection therapy.

THE APPENDIX AND COLONIC PERISTALSIS

To the Editor:—In THE JOURNAL, April 3, in Queries and Minor Notes, page 1201, I observe that to the question whether "the appendix is the initiator of peristalsis of the colon," propounded by Dr. J. Marsh Frere, your reply is "There is at present no evidence that the appendix in any way governs the movements of the colon."

I beg leave to submit the following quotations from my book on Appendicitis (New York, D. Appleton & Co., 1927, p. 28) as justification for the query and possibly throwing some light on the subject:

"A unique and striking position is taken by Adami and McCrae (Textbook of Pathology, 1914) . . . They are impressed with the mechanical relationships of the appendix and the large bowel in man as an erect animal. 'It is the appendix,' they hold, 'that is the hydrostatic agent initiating peristalsis in the large gut.' These writers maintain that, when the weight of the column of feces forming in the colon reaches a certain point, its distending force, acting on the appendix walls below, originates muscular contractions, which spread directly into the cecum and so start the forward movements of its contents. Adami and McCrae further thought that 'such a view explains constipation in the bedridden, in whom this gravitational influence of the contents of the ascending colon can have little effect; it explains the normal tendency to empty the bowels, either shortly after rising, and assuming the erect position, or after the first meal when stimulating peristalsis of the small bowel has driven extra contents into the cecum and so increases the load; it explains the constipation that follows some interval removals of the appendix.' 'Appendiceal constipation' was a special point in their proof 'through lack of initiation of colonic peristalsis, either from inflammation or other obliteration of the lumen of the appendix or operative removal of the same.'" At the time my comment was "One sympathizes with their effort to prove the hydrostatic function of the appendix and accepts the phenomena offered but must feel some doubt concerning the sole agency of the appendix in producing the results."

I also called attention to a practically identical theory elaborated by Dufour (*Presse méd.*, May 12, 1890). "He felt that the appendix plays a great part in provoking a desire for defecation independent of other reflexes concerned in the act. According to his view inflammation of the appendix disturbs its function by immobilizing the bowel instead of aiding its movements; while even without infection an appendix which is too movable excites the peritoneum and gives rise to hyperperistalsis with colicky pains. In the former condition contipation would be the rule and in the latter, alternating diarrhea."

While these hypotheses may seem unimportant and to some impossible of acceptance, my clinical experience during the past few years appears to confirm definitely the observations of Adami and McCrae, whose remarks, I have reason to believe, were reprinted for the first time in my book. At any rate I cannot resist the impulse to suggest that discussion of the question may have some practical value. A paper by me, bearing on the subject, will appear shortly in the *Southern Medical Journal*.

HUBERT A. ROYSTER, M.D., Raleigh, N. C.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, May 15, page 1739.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* June 21-23 and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Practical* examination will be given at Philadelphia in June. *Written examination* will be held in different centers of the United States and Canada in October. Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 7, and Chicago, Oct. 9. *All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Atlantic City, N. J., June 8. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Philadelphia, June 7-8. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Mich.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 2. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Part I (written),* Sept. 20. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Oral examination.* Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Arizona January Examination

Dr. J. H. Patterson, secretary, Arizona State Board of Medical Examiners, reports the written examination held in Phoenix, Jan. 6-7, 1937. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. Twenty-one physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine		(1935)	79.9
Chicago Medical School		(1935)	77.8
Northwestern University Medical School		(1934)	87.5
Tulane University of Louisiana School of Medicine		(1936)	78.9
University of Oklahoma School of Medicine		(1935)	77.8
Baylor University College of Medicine		(1934)	84.5

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Yale University School of Medicine		(1907)	Nebraska
University of Illinois College of Medicine		(1929), (1933)	Illinois
State University of Iowa College of Medicine		(1904), (1909)	Iowa
Southwestern Homeopathic Medical College and Hospital, Louisville		(1906)	Kentucky
Tulane University of Louisiana School of Medicine		(1932)	Louisiana
University of Maryland School of Medicine and College of Physicians and Surgeons		(1928)	Alabama
Wayne University College of Medicine		(1934)	Michigan
St. Louis University School of Medicine		(1932)	California
University Medical College of Kansas City, Missouri		(1911)	Missouri
Washington Univ. School of Medicine		(1929)	Illinois, (1933)	Missouri
Columbia Univ. College of Physicians and Surgeons		(1911)	New York
New York University, University and Bellevue Hospital Medical College		(1928)	New York
Starling Medical College, Ohio		(1903)	Ohio
University of Pennsylvania School of Medicine		(1916)	Penna.
University of Tennessee College of Medicine		(1932)	Tennessee
Vanderbilt University School of Medicine		(1917)	Tennessee
Baylor University College of Medicine		(1915), (1932)	Texas

Pennsylvania January Examination

Dr. James A. Newpher, secretary, State Board of Medical Education and Licensure, reports the examination held in Philadelphia, Jan. 5-9, 1937. Thirty-five candidates were examined, 34 of whom passed and one failed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
George Washington University School of Medicine		(1933)	1
Georgetown University School of Medicine		(1935)	1
Howard University College of Medicine		(1935, 2)	2
Loyola University School of Medicine		(1936)	1
Johns Hopkins University School of Medicine		(1932, 2)	2
University of Maryland School of Medicine and College of Physicians and Surgeons		(1917)	1
Harvard University Medical School		(1934)	1
Tufts College Medical School		(1931)	1
New York University College of Medicine		(1935)	1
University of Buffalo School of Medicine		(1921), (1935)	2
University of Oklahoma School of Medicine		(1935)	1
Hahnemann Med. College and Hospital of Philadelphia		(1935)	1
Jefferson Medical College of Philadelphia		(1934, 4), (1934),* (1935, 2)	7
Temple University School of Medicine		(1934)	1
Univ. of Pennsylvania School of Medicine		(1934, 2), (1935)	3
University of Pittsburgh School of Medicine		(1935)	1
University of Virginia Department of Medicine		(1935)	1
McGill University Faculty of Medicine		(1935)	1
Deutsche Universität Medizinische Fakultät, Prag		(1932)*	1
University of Dublin School of Physic, Trinity College		(1935)	1
Regia Università degli Studi di Roma, Facoltà di Medicina e Chirurgia		(1935, 2)†	2
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow		(1935)	1

School	FAILED	Year Grad.	Number Failed
Temple University School of Medicine		(1934)	1

Four physicians were licensed by reciprocity and 2 physicians were licensed by endorsement on January 5 and January 22. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Minnesota Medical School		(1933)	Minnesota
University of Buffalo School of Medicine		(1933)	New York
Hahnemann Medical College and Hosp. of Philadelphia		(1934)	New Jersey
University of Wisconsin Medical School		(1929)	Wisconsin

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Johns Hopkins University School of Medicine		(1934)	N. B. M. Ex.
University of Pennsylvania School of Medicine		(1932)	N. B. M. Ex.

* License has not been issued.
† Verification of graduations in process. The license of one of these applicants has not been issued.

Missouri Reciprocity and Endorsement Report

Dr. Harry F. Parker, State Health Commissioner, reports 5 physicians licensed by reciprocity and one physician licensed by endorsement at the meeting held in Jefferson City, March 9, 1937. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Indiana University School of Medicine		(1936, 2)	Indiana
University of Minnesota Medical School		(1925)	Minnesota
Creighton University School of Medicine		(1931)	Kansas
University of Tennessee College of Medicine		(1935)	Tennessee

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Boston University School of Medicine		(1935)	N. B. M. Ex.

Oregon January Examination

Dr. Joseph F. Wood, secretary, Oregon State Board of Medical Examiners, reports the written examination held in Portland, Jan. 5-7, 1937. The examination covered 11 subjects and included 81 questions. An average of 75 per cent was required to pass. Eighteen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1936)	88, 88
Northwestern University Medical School		(1936)	88
School of Med. of the Division of the Biological Sciences		(1934)	92
Tufts College Medical School		(1935)	86
Creighton University School of Medicine		(1935)	82
University of Oregon Medical School		(1931)	88, (1935) 85, 86, (1936) 89, 89, 90, 91, 92, 95
Jefferson Medical College of Philadelphia		(1935)	88
University of Wisconsin Medical School		(1935) 88, (1936)	84

Eight physicians were licensed by reciprocity and one physician was licensed by endorsement from January 6 through February 15. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of California Medical School		(1934)	California
University of Kansas School of Medicine		(1929)	Kansas
University of Maryland School of Medicine and College of Physicians and Surgeons		(1932)	Minnesota
St. Louis University School of Medicine		(1934)	Missouri
University of Nebraska College of Medicine		(1923) (1934)	Nebraska, Arizona
University of Oregon Medical School		(1931) (1935)	New York, Washington

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Oregon Medical School		(1935)	N. B. M. Ex.

Book Notices

Lectures on Embolism and Other Surgical Subjects. By Gunnar Nystrom, M.D., Professor of Surgery, University of Uppsala, Sweden. The Abraham Flexner Lectures, Series Number Four. Published for Vanderbilt University. Cloth. Price, $3. Pp. 213, with 22 illustrations. Baltimore: Williams & Wilkins Company, 1936.

The Abraham Flexner lectureship was established in 1927 at Vanderbilt University School of Medicine. An adequate endowment was provided, the income from which was to be used to secure as lecturer, at intervals of two years, some eminent physician or scientist, who remains biennially in residence for a period of two months and becomes associated with the leading personnel and students. The fourth lecturer in this series, Prof. Gunnar Nystrom, gave a number of informal lectures in the wards, operating rooms and clinics. Only five of these have been included in the present volume.

The subject of the first lecture is embolism of the arteries of the extremities and its treatment. He not only relates his extensive personal experience (thirty-five cases) but has collected and analyzed the entire Swedish material, which because of its size and of its accurate follow up has served as a model for the rest of the world. Especially valuable are the figures of Strombeck, who followed sixty-one patients after their discharge from the hospital with restored circulation. He found that three fourths of these patients were alive after one year, half of them after three years, one third after five years and one eighth ten years after embolectomy. The great modesty of the author in describing his own contributions to the technic of the operation is apparent throughout the volume.

In the second lecture, pulmonary embolism and its surgical treatment are discussed. Here again the author is known as a pioneer in the field. A number of interesting charts are presented, some of them never published before, on the increasing frequency of embolism in the Uppsala clinics, on its relation to the increase in the age of surgical patients, on the number of deaths from private and public wards, and on the difficulties of preoperative diagnosis. Many important technical points are discussed. Real progress in this field can be expected when the causes of thrombosis and the methods of its prevention have become better understood.

The third lecture deals with Swedish experiences in combating appendicitis. He touches here on all the controversial points that are now agitating the surgeons of this country. In the Uppsala clinic the mortality from suppurative peritonitis has decreased from 20 per cent for the cases between 1888 and 1907 to 3.9 per cent from 1912 to 1918. In an enlightening table he shows that in 1934 operations were performed in 71 per cent of all cases within one day of the attack, in 85 per cent within five days and in 7 per cent more than three days after the attack. X-ray examination, with and without contrast enemas, has been used extensively in his clinic. In fact Hugo Laurell, roentgenologist at Uppsala, has made important contributions in this field. With regard to the Ochsner treatment of peritonitis, Nystrom, together with the other Scandinavian surgeons, believes that all cases of diffuse peritonitis due to appendicitis require immediate operation unless the patient is in a dying condition. His arguments, especially when he presents the data of Bauer of Malmo, are truly impressive. The author has also noted an increase in the mortality of appendicitis in the last few years but points out that some of this is only apparent. He suggests a widespread education of the general public, an increased vigilance on the part of physicians, further improvements in diagnosis, earlier admissions to the hospital, and possibly the development of serologic methods to decrease mortality.

There is an obvious inference to be drawn from the first three lectures: the excellent undergraduate and postgraduate education of the Swedish physicians, their alertness in the diagnosis of emergencies, and their unwillingness to handle surgical emergencies that are beyond their skill and experience.

In the fourth chapter the author discusses the cytology of joint exudates as an aid to diagnosis. More than 400 exudates, mostly from the knee joint, have been examined. Purposely only a simple method has been employed, which might be used in hospital laboratories or in the office. A differential count was made between polymorphonuclear cells and mononuclear cells of all kinds. Either a dry smear is stained with borax-methylene blue or citrated sediments are stained by Quensel's method (methylene blue, sudan red and cadmium chloride). This Swedish colleague of Nystrom has studied a number of pleural and peritoneal exudates with this method. Absence or a very low count of polymorphonuclear cells in a joint exudate is characteristic of a slight chronic irritation of mechanical nature. A high count of polymorphonuclear cells is characteristic of toxic irritation, produced by aseptic necrosis, foreign chemical substances or toxins produced by microorganisms. A moderate degree of polynucleosis (from 40 to 70 per cent) is characteristic of the vast majority of cases of tuberculous synovitis, but neither a marked mononucleosis nor a high polynuclear cell count excludes tuberculosis of the joint. In various other types of arthritis the percentage of polymorphonuclear cells decreases with the subsidence of the process.

Nystrom regards these studies merely as an attempt for a tentative orientation. Certainly this field, to which many American authors, such as Sabin, Cunningham and Keyes, have made important contributions, has not been generally known or utilized by the profession. It should stimulate further work.

In the last chapter the treatment of intracapsular fractures of the neck of the femur is discussed. Here again Nystrom brings up a much discussed subject. After a short, lucid historical review in which the rôle of American surgeons is adequately discussed, the author describes his present method of choice, which is the Johansson modification of the Smith-Petersen flanged nail, used for internal fixation. In a period of one and a half years, twenty-nine cases of medial fractures of the neck of the femur were treated by this method. There are important technical details meticulously described. The death rate was 6.9 per cent; with increasing experience and prolonging the time of rest in bed to from two to three months his results have been growing better. Excellent diagrams illustrate the close follow up of these cases. He believes that this method gives better results than any one previously used.

These five lectures are of general interest. While they discuss surgical subjects, the relationship of early proper diagnosis by the physicians to the superb performances of the Swedish school of surgery is obvious. Vanderbilt University must be congratulated for having secured first hand information by one of the leaders in Scandinavian surgery. The text has retained the original forceful, sometimes foreign but grammatically correct delivery of the lecturer. Illustrations and printing are excellent. This group of lectures is recommended to all interested in surgery or to those who would wish to know how modern surgical methods can decrease the mortality of their handicapped patients.

Lombosartrite e sciatica vertebrale: Saggio clinico. Di V. Putti. Paper. Price, 50 lire. Pp. 218, with 144 illustrations. Bologna: L. Cappelli, 1936.

This monograph on lumbar arthritis and vertebral sciatica is a welcome publication. The author's name assures the value of the book. It contains a compilation of the author's previous presentation on this subject, and much besides. The author presents the theory of pathogenesis and etiology especially from the anatomic and osteologic points of view and outlines a plan of treatment. The illustrations, consisting of line drawings and reproductions of photographs, roentgenograms and colored photomicrographs, are excellent and instructive. Some of the noteworthy features are the relationship of the vertebral architecture, form and alinement to the nerve roots. The book contains anatomic diagrams showing radiculitis, ganglionitis and neuritis. The author describes the cause of pain in sacralization of the fifth lumbar. Figure 8 is an interesting diagram of the relationship of two vertebrae, their intervertebral disks, the foramen and the interarticular joint. Figures 16, 17 and 19 show the relationship of the articular facets of the lumbar vertebrae and illustrate the anomaly of tropism, of which the author has written previously. The anatomic demonstrations of arthritis of the apophysis are exceedingly well done. Figures 27, 28, 29 and 30, the demonstration of marginal osteophytes, is unusually clear. Radiographic demonstration of apophyseal arthritis is shown in diagrammatic representation and is instructive. Vertebral contraction producing sciatic scoliosis is well

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demonstrated and described. The motor and sensory disturbances are discussed. The author describes his method of treatment by the Bier baker, and treatment by means of immobilization in plaster, corsets and celluloid jackets. He discusses also the surgical treatment of arthrodesis, apophysectomy and his operation for sacralization, which is beautifully illustrated.

Therapeutic Uses of Infra-Red Rays With a Chapter on the Treatment of Sinusitis by Radiotherapy. By W. Annandale Troup, M.C., M.D., Ch.B. With foreword by Sir William Willcox, K.C.I.E., C.B., M.D. Third edition. Cloth. Price, 10s. 6d. Pp. 151, with 28 illustrations. London: Actinic Press, Limited, 1936.

This small textbook consists of a description of the therapeutics of infra-red rays and describes sources, methods of detection, indications and technic of application. There are chapters on the combined use of infra-red and ultraviolet rays, the treatment of "acutely painful conditions," the treatment of "rheumatism and allied conditions," rheumatoid arthritis, sinusitis, paresis, sprains, and long standing infections. While the book presents much valuable information on infra-red radiation and purports to serve as a plea for greater use of this valuable therapeutic agent, there is an unfortunate tendency in it toward exaggeration and an acceptance of conjecture as fact which may defeat this purpose. Such statements as the following are certain to be questioned: that infra-red radiation is "certain to give immediate relief" in the treatment of neuralgia; that infra-red radiation relieves pain "by liberating the nerve endings which have been caught up in the abnormal deposits"; that the use of "a blue filter over a certain type of heat lamp will relieve pain on extraction of teeth"; that "rheumatic conditions get well without the application of any local treatment but by means of application of general ultraviolet irradiation alone"; that acute fibrositis and neuralgia "can almost invariably be relieved and cured if seen early enough by one infra-red treatment," and that the author has "never yet seen a case of Bell's (facial) paralysis that will not clear up entirely after six properly applied infra-red treatments." The reader gains the impression that the author has fallen into the practice of applying a certain dull routine of heat applications with various types of lamps of his own devising which elaborate far infra-red rays, and that it is his custom almost invariably to follow these infra-red applications by local applications of ultraviolet radiation and general exposures to ultraviolet rays. Insufficient stress is placed on the value of simple applications of luminous heat by means of some simple source of near infra-red radiation, such as the home made "baker." It is unfortunate that many books on various phases of physical therapy have been prepared with insufficient attention to scientific detail and to controlled clinical experiment. This work is a case in point. In his conclusion the author frankly states that he presents the book with "an acute realization of its limitations." Despite these limitations, some of which have been mentioned, the text does contain much valuable information, and if the reader will discount the apparent lack of scientific proof of the author's contentions he may still read the book with considerable profit.

Physiological Principles in Treatment. By Sir Walter Langdon-Brown, M.A., M.D., F.R.C.P., Consulting Physician to St. Bartholomew's Hospital, London, and Reginald Hilton, M.A., M.D., F.R.C.P., Physician in Charge of Out-Patients, St. Thomas' Hospital. Seventh edition. Cloth. Price, $3. Pp. 308, with 4 illustrations. Baltimore: William Wood & Company, 1936.

The contents of this excellent book, which is something more of an applied physiology than a treatise on actual therapeutics, comprise the principles of organotherapy, vitamins and the deficiency diseases, mechanical factors in digestion and indigestion, gastric and intestinal digestion, the work of the liver, uric acid and renal calculi, albuminuria and the treatment of nephritis, glycosuria, insulin and ketosis, some aspects of heart disease, the vasomotor system in disease, the life history of the red blood corpuscle, cyanosis and dyspnea, and allergy and some allergic diseases. There is a small list of principal references and a sufficiently comprehensive index. For the present edition a large portion of the work has been rewritten and there have been some modifications in the general plan. Vitamins, for example, are presented immediately after hormones, and the mechanical side of digestion precedes the discussion of its chemical phases. The separate chapters formerly devoted to intestinal toxemia and the uric acid bugbear have finally been omitted, allowing for a much abbreviated consideration of these subjects with the topics to which they are allied. The subject of ketosis is now properly included in the same chapter as diabetes. Of the new chapters on anemia and allergy, the former is by far the more acceptable. The book, though by no means exhaustively presenting any of the subjects which it includes, will certainly and deservedly continue to hold the esteem of those who wish from time to time to peruse in thoughtful vein a review of some of the topics of main interest in internal medicine. In passing, however, one cannot help remarking the peculiar use which the British cousin sometimes makes of our language—witness the following from the work under consideration, which on the whole is written with clarity and a distinctive feeling for the use and meaning of words: "He had attempted suicide, and his brother was almost mental."

Healthy Growth: A Study of the Influence of Health Education on Growth and Development of School Children. By Martha Crumpton Hardy, Ph.D., and Carolyn H. Hoefer, M.A. Cloth. Price, $3.50. Pp. 360, with 12 illustrations. Chicago: University of Chicago Press, 1936.

This is a reference book of extraordinary exhaustiveness. It represents an investigation carried out by the Elizabeth McCormick Memorial Fund in the public schools of Joliet, Ill. For the serious student of growth and development of the healthy child, it is a book that will repay long and serious study. The volume consists of a careful description of the composition of the group of children studied, a description of the medical examinations employed and chapters devoted to the various observations, such as physical growth and development, mental growth, educational achievement, school progress and success, interests and attitudes, behavior adjustment, and influences of a health education program. There is also an extended discussion of health appraisal of school children and the rôle of health as related to development during late childhood. The data are presented in numerous tables and graphs and are exhaustively discussed. The book is a fine example of practical research and should be of great value to those in the schools who are concerned with health as a factor in educational progress. Physicians, too, should find this book a valuable discussion of normal childhood and a measure, therefore, against which deviation can more readily be evaluated.

Introduction à la chirurgie génito-urinaire. Par E. E. Lauwers. Préface du Pr. Legueu. Paper. Price, 32 francs. Pp. 197. Paris: Masson & Cie, 1936.

This book fulfils the purpose for which it was written; viz., to outline to the medical student in a brief but comprehensive manner the entire field of urology. It is written with an aim to keep the student ever in mind of the physiologic and pathologic processes responsible for the symptoms produced. Emphasis is placed on diagnosis. Treatment, though briefly outlined, is left for larger and more comprehensive works. The divisions of the book are extremely interesting. Pathologic and physiologic subject matter with associated symptoms are segregated and each is discussed from the standpoint of its relation to the urinary tract as a whole. This eliminates the customary division of upper and lower urinary tracts and is much less confusing to the beginner. In short, this book would serve as an excellent basic guide or outline which, if supplemented by outside references, would assure a comprehensive urologic course for the medical student.

Stoffwechselkrankheiten und Vererbung. Von Prof. Dr. Friedrich Curtius, Leiter der erbpathologischen Abteilung der 1. medizin. Universitäts-Klinik der Charité Berlin. Staatsmedizinische Abhandlungen, 13. Herausgegeben von Ministerialdirektor Dr. A. Gütt, Ministerialdirektor Dr. G. Frey, Staatsrat Dr. L. Conti, und Stadt-Med.-Rat Prof. Dr. W. Klein. Paper. Price, 1.80 marks. Pp. 19, with 8 illustrations. Leipzig: Johann Ambrosius Barth, 1936.

This is apparently a reprint of a semipopular lecture on metabolic diseases and heredity, with particular reference to diabetes mellitus. It is one of a series of pamphlets published in the interests of "race hygiene." The author cursorily reviews the evidence for the influence of heredity on the incidence of diabetes and attempts to show that this same hereditary factor also predisposes to obesity, the arthritides and nervous disorders. He concludes that young persons with diabetes should be discouraged from marriage and that the mating of members of "diabetic families" should be strictly forbidden. A bibliography is appended in which the only non-German reference is a book by Joslin, not correctly titled and incompletely cited.

Les abcès du foie. Par P. Huard, professeur agrégé à l'Ecole d'application du Service de santé des troupes coloniales, chargé de cours d'anatomie à l'Ecole de médecine de Hanoï, et J. Meyer-May, chargé de cours de clinique chirurgicale à l'Ecole de médecine de Hanoï. Préface du Professeur A. Gosset. Paper. Price, 65 francs. Pp. 390, with 98 illustrations. Paris: Masson & Cie, 1936.

This monograph is a thorough discussion of all phases of abscess of the liver. The opening chapter deals with the statistics of abscess of the liver, followed by chapters on surgical anatomy, symptoms and differential diagnosis. The book includes a complete chapter on radiologic diagnosis and localization of the lesions. Two complete chapters are given to medical and surgical treatment, and short abstracts are given of more than 150 cases, with observations at necropsy in forty-three cases. An extensive bibliography forms part of the monograph. The work is well written and is a definite contribution to the subject of hepatic abscess.

Absorption from the Intestine. By F. Verzár, Professor of Physiology of the University of Basle. Assisted by E. J. McDougall, Ph.D. Cloth. price, $9. Pp. 294, with 70 illustrations. New York, London and Toronto: Longmans, Green & Co., 1936.

In this excellent monograph on a difficult but important problem in biology and medicine, the description of the histology of the absorbing mucosa is followed by an outline of the methods used in investigation of the factors and forces of absorption, and the succeeding chapters give a brief and clear account of the facts so far known regarding the absorption of all possible substances from the stomach, small intestine and large intestine. The style is clear and concise. Of special importance may be mentioned the evidence that the adrenal cortical hormone plays an important part in the selective absorption of sugar from the intestine as well as in the intestinal absorption of fat. Some of the known factors in absorption that have so far seemed contrary to known physical and chemical factors seem to be brought into harmony with these principles by processes of resynthesis in the cells of the mucosa of large molecules from the smaller molecules absorbed. This produces a diffusion gradient from the lumen of the intestine into the cells. The monograph is a welcome addition to the scientific armamentarium not only in the research laboratory but also in the clinics dealing with gastro-intestinal disturbances.

Technique of the Love-Act: A Medical Contribution for the Advancement of the Sexo-Physiological Harmony in Marriage. By Doctor Douglas MacDougall. With Cabinet of Diagrams. Cloth. Price, $3.50. Pp. 63. New York: Medical Press of New York, [n. d.].

Kama Sutra: The Hindu Science of Love. By Mallinaga Vagsyayana. Translated from the Sanskrit by Sir Richard Burton. Introduction by Hanns Heinz Ewers. Cloth. Pp. 127, with illustrations by Mahlon Blaine. New York: Medical Press of New York, 1936.

These two volumes are promoted to the medical profession with lurid circulars sent direct by mail which give the impression that the volumes offer something extraordinary, titillating and forbidden. They are merely pamphlets bound in solid covers, poorly illustrated and poorly printed, and sold at an excessive price because of the nature of the material that they are alleged to contain. They are obviously not the type of books that are given to small children for their amusement and entertainment. Some may have considerable doubts as to their general distribution even among adults. They do contain suggestions for variation in the sex act and for rituals of excitation which may not occur to many unimaginative or inhibited individuals.

Roads to Health and Happiness. By Oscar C. Mueller. Cloth. Price, $2. Pp. 137. New York: Prentice-Hall, Inc., 1936.

The author retired from the practice of law ten years ago and has since then given his attention to the business of living. In this volume he sets forth what he prefers to call "the results of his researches." It would be better to call his volume his observations and philosophy on life and those who live it. He discusses sixteen subjects, which include nostrums, insomnia, hobbies, divorce and the right to happiness. In the discussion on food the author is impressed with "acidosis," since he mentions it frequently and plays up the alkaline foods. He does not appear to be quite clear in his own mind on the meaning of many of the topics, since he uses phrases such as "blood cleanser" in discussing leafy vegetables. In the chapter on tobacco the statement that "tobacco stunts growth" is the only one to which the purist will object. The author is at his best in his observations on divorce, especially those which deal with the legal phases. The physician may find this book of interest because of the many quotations from people of all the ages including the modern radio and cinema comedians. The paragraphs on health have been said before and often better, yet not all authors are as meticulous as this one in crediting sources of information.

Fille ou garçon. Comment avoir fille ou garçon. Diagnostic précoce de la grossesse. Comment connaître le sexe avant la naissance. Par le Docteur Jules Regnault. Paper. Price, 18 francs. Pp. 299, with illustrations. Paris: Editions Médicis, 1936.

This book combines the ancient history, the folklore, and the scientific and personal observation phases of the problems of predetermination of sex of offspring, early diagnosis of pregnancy, and the prenatal determination of the sex of the unborn child. The work is interesting from a historical point of view and is written in a humorous vein as though the author were sitting back with his tongue in his cheek. The part of the book dealing with pregnancy diagnosis is fairly complete, and in the discussion of methods of diagnosis of the sex of the unborn child all the diagnostic apparatus available for such diagnosis, including the Abrams machine, are described. As a scientific book for the physician's education this book would not serve: as a humorous quasiscientific bit of reading it may prove to be of interest.

A Text-Book of Inorganic Pharmaceutical Chemistry for Students of Pharmacy and Pharmacists. By Charles H. Rogers, D.Sc., Dean of the College of Pharmacy and Professor of Pharmaceutical Chemistry, University of Minnesota. Second edition. Cloth. Price, $7. Pp. 724, with 55 illustrations. Philadelphia: Lea & Febiger, 1936.

True to its title, this volume discusses inorganic pharmaceutic chemistry. It is based on the U. S. Pharmacopeia and the National Formulary except for arrangement. In addition, the methods of commercial manufacture are described. It is nicely printed and bound. As a reference book it is excellent. As a textbook it may be differently considered. The book is a compendium of information that is easily obtained from the Pharmacopeia, the National Formulary and other books. It is more worth while to teach generalities, laws and reasons for facts than to teach masses of information as easily found and understood as is much of the information found in this book.

The Boy's Book of Strength. By C. Ward Crampton, M.D. Cloth. Price, $2. Pp. 257, with illustrations. New York & London: Whittlesey House, McGraw-Hill Book Company, Inc., 1936.

Dr. Crampton has written a book that almost every boy between the ages of 8 and 15 can read with pleasure and profit. It is a simple and practical program of health management which seeks to coordinate all the social agencies that touch on the youth's daily life. The style of the book is direct and engaging and cannot help but elicit the reader's interest. The author's long experience with youth activities is admirably reflected in the organization of his text. The information is sound, stimulating and written in the boy's language. Each chapter is concise, explicit and well illustrated by diagrams. The book should be part of the library of every growing boy.

Tentatives opératoires dans le traitement de certaines psychoses. Par Egas Moniz, professeur de neurologie à la Faculté de médecine de Lisbonne. Paper. Price, 40 francs. Pp. 248, with 39 illustrations. Paris: Masson & Cie, 1936.

The author, who is known for his arterial encephalography, has ventured again into a radical diagnostic and therapeutic procedure. On the assumption that certain psychoses are due to congenital malformations of the frontal association fibers, he attempts to destroy these abnormal fibers by injecting alcohol into the white matter of the frontal lobes. He avoids producing paralysis or aphasia. His results have been encouraging to him, although, as he states, the patients are not always intellectually the same after the treatment. A good deal more work must be done experimentally before the procedure can be utilized in this country. The basis for the treatment is incomprehensible to us and we should demand much more empirical data before even thinking of using this extremely radical procedure.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Optometry Practice Acts: Advertising Fixed Prices; Injunction to Restrain Advertising.—Three registered optometrists and the Michigan Society of Optometrists, on behalf of themselves and duly registered optometrists, filed a bill to enjoin the Buhl Optical Company, a Michigan corporation with its offices at Pittsburgh, from advertising the prices of glasses and from using the statement "Scientific eye examination included," or any statement of like effect in its advertisements, such advertising being proscribed by the optometry practice act of Michigan. The trial court issued a temporary injunction and the optical company appealed to the Supreme Court of Michigan.

The difficulty, said the court, with the optical company's entire position is its belief that optometry is merely an incident to its corporate merchandising business. It overlooks the fact that optometry is a science devoted to the measurement of the accommodation and refractory powers of the eye without the use of drugs. The legislatures of the several states have recognized that the proper practice of this profession is of the most vital importance to the public and have provided not only for the licensing of optometrists after examination but for regulating the practice of the profession. The advertising of the sale of glasses with optometrical service at a price certain, continued the court, is apt to be used as a lure and bait to the unwary and as a means of deception to those who are attracted by a seemingly low price without considering the degree of skill involved. It tends to promote unfair competition against those skilled in the profession. The "barker" and others who make their livelihood out of human gullibility cannot apply their talents to human eyesight without serious consequences. The legislature of Michigan undoubtedly had these evils in mind when it adopted the optometry practice act, and reasonable statutory regulation of advertising involving professional services is proper where, in the absence of such legislation, great evils will follow.

The optical company contended, apparently, that since it employed only licensed physicians and surgeons, the optometry act did not apply to it because of a proviso in the act exempting physicians and surgeons from its provisions. But, said the court, the Buhl Optical Company is not a physician or surgeon, despite the fact that it may hire only physicians and surgeons to do its optometric work. The injunction granted by the trial court was not "pointed at a medical doctor" but at a "corporation engaged in the sale of merchandise . . . who maintains . . . in connection with said merchandising business, an optometric business." The court here referred to the case of *Eisenzmith* v. *Buhl Optical Company*, 115 W. Va. 776, 178 S. E. 695, in which the company made a futile attempt to circumvent the law by using a physician as a subterfuge. The company in the present case further contended that the restriction on advertising resulted in an unreasonable classification and deprived it of property without due process of law. The only objection, countered the court, with even a semblance of merit is the claim that the statute does not prevent physicians or unregistered optometrists from advertising that which others in the same class are forbidden. The objection that the prohibition would not apply to unregistered optometrists is not a fatal one, the court pointed out, as the act provides other penalties for the failure to register, and it is not necessary to make the prohibition against advertising applicable to one who is practicing optometry illegally. Further, the various laws regulating medical advertising have been deemed sufficient to cover the advertising of physicians practicing optometry.

The further contention was made that the plaintiffs did not have sufficient property interest in the subject matter to entitle them to an injunction and that the injunctive process may not be used for the purpose of enjoining a crime. Suit may be brought by persons, said the court, engaged in a profession or business to enjoin unfair trade and practice which would be injurious to their interests, and the fact that such practices are punishable by criminal penalties is immaterial. The action of the trial court in granting the injunction was sustained.—*Seifert v. Buhl Optical Co. (Mich.), 268 N. W. 784.*

Wills: Alcoholism in Relation to Testamentary Capacity.—The habitual use of intoxicating liquor to excess, said the district court of appeal, third district, California, may result in permanent insanity. To constitute insanity, however, more than dipsomania must be shown. It must be a condition of fixed mental unsoundness, and insanity cannot be presumed on proof merely of habitual drunkenness however excessive or long continued. The fact that a testator may have been under the influence of intoxicating liquor at the time he made his will does not invalidate the instrument unless he at that time had no independent comprehension of what he was doing. The intoxication of the testator, assuming it to have been established on the day of execution of his will, must have been of such a degree as to deprive him of judgment while executing the will. It must affirmatively appear that the testator was so far under the influence of liquor at the time of the execution of the will that he was incapable of comprehending the nature of his act, the extent of his property, and those who had a claim on his bounty.

The presumption is that a person is sane. It devolves on the contestants of a will to establish, not only that the testator was of unsound mind, but that at the very time he executed his will he did not have the mental capacity to know the nature of his act or the nature or situation of his property, the natural objects of his bounty, and how they would be affected by the will. On the contest of a will on the ground that the deceased was of unsound mind, it is the mental condition of the testator at the time of the execution of the will that is important. Evidence as to mental condition before or after the execution of the will is important only so far as it tends to show the mental condition at the time of the execution of the instrument.—*In re Smethurst's Estate: Smethurst v. Smethurst (Calif.), 59 P. (2d) 830.*

Workmen's Compensation Acts: Hemiplegia Attributed to Mercurial Poisoning.—The claimant, aged 38, contracted mercurial poisoning during the course of his employment as a hatter. A hemiplegic condition developed in his right side for which the compensation commissioner allowed compensation. After the superior court had affirmed that award, the employer appealed to the Supreme Court of Errors of Connecticut.

The question before the court was whether the hemiplegia from which the claimant admittedly was suffering and by which he admittedly was incapacitated resulted from mercurial poisoning or was due to a congenital aneurysm as contended by the employer. While a paralysis resulting from mercurial poisoning, said the court, is very rare, it has been known to occur. There is no objective sign to distinguish a ruptured blood vessel resulting from aneurysm and a ruptured blood vessel resulting from mercury. An aneurysm, however, in a man of 38 years of age is a rarity. One of the witnesses for the claimant who had had much experience in cases of mercurial poisoning and who had attended and observed the claimant over a long period of time testified that in his opinion the hemiplegia was due to mercury. He found nothing in the claimant's physical condition to cause hemiplegia. Another witness for the claimant stated that, from his examination of the claimant and his experience with mercurial poisoning, the hemiplegia was due to mercurial poisoning. Physicians who testified for the employer were of the opinion that the claimant's condition was due to congenital aneurysm, basing their opinions on the fact that they had found in medical literature no authentic cases in which a paralysis of the type from which the claimant was suffering resulted from mercurial poisoning.

In the opinion of the Supreme Court of Errors, the conclusion reached by the compensation commissioner was supported by the opinions of qualified experts who stated plainly and definitely that in their professional opinion mercurial poisoning was the superinducing cause of the claimant's disability. Although the case was an unusual one, the court said, it cannot be said that the evidence of these witnesses was such that a rational mind could not believe it. The decision of the com-

missioner being based on conflicting testimony, the court felt disinclined to interfere with it. The award in favor of the claimant was, in effect, affirmed.—*Manacek v. George McLachlan Hat Co. (Conn.), 186 A. 487.*

Evidence: Admissibility of Roentgenograms for Purpose of Comparison; Right of Physician to Refresh Memory from Hospital Records.—Roentgenograms of the normal pelvic bones of a female two years older than the injured female plaintiff, said the Supreme Court of Minnesota, are admissible in evidence for the purpose of comparing them with roentgenograms of the latter's fractured pelvis bones. An attending physician, in testifying relative to the temperature and pulse of a patient, may refresh his memory by consulting the patient's hospital record which he had previously identified.—*Draxten v. Brown (Minn.), 267 N. W. 498.*

Medical Practice Acts: Drugless Healing as Practice of Medicine.—Persons who desire to practice any branch of the healing art in Pennsylvania, even though that branch does not embrace the administration of drugs, should by this time, said the superior court of Pennsylvania, be able to understand that they cannot lawfully engage in such practice until they have complied with the requirements of the medical practice act. The judgment of the trial court convicting the defendant of practicing medicine and surgery without a license was consequently affirmed.—*Commonwealth v. Mollier (Pa.), 186 A. 757.*

Malpractice: Ophthalmia Neonatorum in Relation to Failure to Use Prophylactic as Required by State Health Regulations.—The defendant, a physician, attended the birth of the plaintiff's baby. Four days thereafter the baby developed an infection of the eyes, which eventually resulted in total blindness of the right eye and impairment of vision in the left eye. Suit was instituted against the physician, attributing the infection and its results to his negligence in caring for the child at and after birth. In the trial court the jury disagreed but the court, on motion of the defendant, dismissed the case on the ground that the evidence was insufficient to sustain a verdict for the plaintiff. Thereupon the plaintiff appealed to the Supreme Court of Washington.

Ophthalmia neonatorum, said the court, is an infection in the eyes of the new-born and although the term may be applied to any infection, it is generally accepted as indicating the presence of gonococci. As a precautionary measure, the state health regulations require that at birth a solution of silver nitrate or mild protein silver [argyrol] shall be put in the infant's eyes. When the prophylactic is used, ophthalmia neonatorum develops in only one case in a thousand; when it is not used, the infection develops in 10 per cent of the cases. In the present case the prophylactic was not used. According to the evidence, on the afternoon of the third day the mother noticed that the eyelashes of the baby's left eye were covered with "matter" and stuck together. The following day she spoke to the physician about the condition and he told her that he would take care of the child's eyes, expressing the opinion that he thought the condition was the result of a cold. The condition gradually grew worse, the purulent discharge increasing day by day. When the mother left the hospital, a nurse advised her to put one drop of 5 per cent mild protein silver [argyrol] in the baby's eyes twice a day and wash them every three hours with a solution of boric acid. Subsequently the right eye became infected and the discharge from the eyes became streaked with blood. Finally the defendant advised the parents to take the child to an eye specialist, who caused laboratory tests to be made of the discharge from the eyes. The laboratory reports failed to show the presence of gonococci. This specialist diagnosed the condition as conjunctivitis and attributed it to closure of the nasal ducts.

There was no direct testimony that the child was suffering from a gonorrheal infection. A number of experts testified that the treatment given by the parents was proper and adequate for the condition described. This testimony, the court thought, was predicated on the assumption that the infection was not gonorrheal. While the laboratory reports on the smears taken from the eyes indicated that no gonococci were present, this fact, the court said, did not eliminate a diagnosis of gonorrheal infection if a clinical examination so indicated. The failure to administer the prophylactic constituted negligence, viewed either as a violation of the state health regulations or as a departure from accepted practice. Whether the infection was gonorrheal and whether it was the proximate result of such negligence were for the jury to say. In the opinion of the Supreme Court, therefore, the trial court erred in dismissing the case and it was remanded to the trial court for further proceedings.—*Jordan v. Skinner (Wash.), 60 P. (2d) 697.*

Society Proceedings

COMING MEETINGS

American Medical Association, Atlantic City, N. J., June 7-11. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

American Academy of Pediatrics, New York, June 3-5. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Academy of Tuberculosis Physicians, Atlantic City, N. J., June 7-8. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.

American Association for the Study and Control of Rheumatic Diseases, Atlantic City, N. J., June 7. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.

American Association for the Study of Goiter, Detroit, June 14-16. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.

American Association for Thoracic Surgery, Saranac Lake, N. Y., May 31-June 2. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Association of Genito-Urinary Surgeons, Quebec, Canada, June 14-16. Dr. Henry L. Sanford, 1621 Euclid Ave., Cleveland, Secretary.

American Bronchoscopic Society, Atlantic City, N. J., June 2. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.

American Dermatological Association, Sky Top, Pa., June 3-5. Dr. Fred D. Weidman, 1930 Chestnut St., Philadelphia, Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., June 7-8. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.

American Gynecological Society, Swampscott, Mass., May 31-June 2. Dr. Richard W. TeLinde, 1201 N. Calvert St., Baltimore, Secretary.

American Laryngological Association, Atlantic City, N. J., May 31-June 2. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, N. J., June 3-5. Dr. C. Stewart Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secretary.

American Neurological Association, Atlantic City, N. J., June 3-5. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. J. Milton Griscom, 255 South 17th St., Philadelphia, Secretary.

American Orthopedic Association, Lincoln-Omaha, Neb., June 2-4. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.

American Otological Society, New York, May 27-28. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.

American Physiotherapy Association, St. Paul, June 27-July 1. Miss Jefferson I. Brown, Tichenor Hospital School, Long Beach, Calif., Secretary.

American Proctologic Society, Atlantic City, N. J., June 6-8. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

American Radium Society, Atlantic City, N. J., June 7-8. Dr. William P. Healy, 121 East 60th St., New York, Secretary.

American Society of Clinical Pathologists, Philadelphia, June 2-6. Dr. A. S. Giordano, 531 North Main St., South Bend, Ind., Secretary.

American Surgical Association, New York, June 3-5. Dr. Charles G. Mixter, 319 Longwood Ave., Boston, Secretary.

American Therapeutic Society, Atlantic City, N. J., June 4-5. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.

American Urological Association, Minneapolis, June 29-July 1. Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., Secretary.

Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 7-8. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary-General.

Association for the Study of Internal Secretions, Atlantic City, N. J., June 7-8. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.

Maine Medical Association, Belgrade Lake, June 20-23. Miss Rebekah Gardner, 22 Arsenal St., Portland, Secretary.

Massachusetts Medical Society, Boston, June 1-3. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.

Medical Library Association, Richmond, Va., May 23-26. Miss Janet Doe, 2 East 103d St., New York, Secretary.

Medical Women's National Association, Atlantic City, N. J., June 6-8. Dr. F. S. Fetterman, 7047 Germantown Ave., Philadelphia, Secretary.

Montana, Medical Association of, Great Falls, July 13-14. Dr. E. G. Balsam, 208½ North Broadway, Billings, Secretary.

National Tuberculosis Association, Milwaukee, May 31-June 3. Dr. Charles J. Hatfield, 7th and Lombard Sts., Philadelphia, Secretary.

New York, Medical Society of the State of, Rochester, May 24-26. Dr. Peter Irving, 2 East 103d St., New York, Secretary.

Pacific Northwest Medical Association, Great Falls, Mont., July 8-10. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.

Rhode Island Medical Society, Providence, June 2-3. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.

Society of Surgeons of New Jersey, Englewood, May 26. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.

South Dakota State Medical Association, Rapid City, May 24-26. Dr. John F. D. Cook, Langford, Secretary.

Vancouver Medical Association Summer School, Vancouver, B. C., June 22-25. Dr. J. R. Naden, 203 Medical-Dental Bldg., Vancouver, Secretary.

West Virginia State Medical Association, Clarksburg, May 24-26. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

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Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

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Some Recent Advances in Orthopedic Surgery. S. R. Terhune, Birmingham.—p. 293.
Diagnosis and Treatment of Pain About the Face and Head: Comprising Major Types of Neuralgia. W. M. Craig, Rochester, Minn.—p. 296.
Notes on High Eosinophil Counts in Arsphenamine Poisoning. G. Walsh and C. S. Stickley, Fairfield.—p. 299.
Skeletal Traction. F. L. Chenault, Decatur.—p. 300.
Hay Fever in Alabama: I. The Flora of Alabama. C. K. Weil, Montgomery.—p. 302.
Fractures of Lower End of Tibia and Fibula. C. L. Guice, Gadsden.—p. 305.

American Journal of Hygiene, Baltimore

28: 187-420 (March) 1937. Partial Index

Studies on Oocyst Production in Avian Coccidiosis: I. Dilution Count Technic. D. C. Boughton, Princeton, N. J.—p. 187.
Id.: II. Chronic Isosporan Infections in Sparrow. D. C. Boughton, Princeton, N. J.—p. 203.
*Studies on Yeastlike Organisms Isolated from Mouths and Throats of Normal Persons. Ramona L. Todd, Minneapolis.—p. 212.
Experience in Vaccinating Against Yellow Fever with Immune Human Serum and Virus Fixed for Mice. W. A. Sawyer, New York.—p. 221.
*Study of Objective Efficacy of Liver Therapy in Pernicious Anemia Based on Recorded Mortality Data. A. H. Sellers, Toronto.—p. 259.
Application of Paired Feeding Method to Studies of Chemical Changes in Blood of Dogs Following Suprarenalectomy. H. G. Day, H. D. Kruse and W. M. Firor, Baltimore.—p. 269.
Effect of Direct Animal Passage on Pathogenicity of Endamoeba Histolytica for Kittens. H. E. Meleney and W. W. Frye, Nashville, Tenn.—p. 313.
Localization of Trichinella Spiralis in Muscle of Its Host. C. H. Scheifley, Rochester, Minn.—p. 349.
Subcutaneous Smallpox Vaccination with Bacteria Free Vaccine. E. Gallardo and J. Sanz.—p. 354.

Yeastlike Organisms in Mouths of Normal Persons.—Todd found, by culture studies, that 14 per cent of 1,000 normal individuals harbored Monilia albicans. In 7 per cent the organism was present in both the mouth and the throat, in 3.1 per cent the organism was obtained only from the mouth, and in 3.9 per cent only from the throat. There was a higher incidence in women, as 18.2 per cent of 527 women yielded the organism, while it was present in only 9.3 per cent of 473 men. Of the serums tested from 1,150 normal persons 259, or 22.5 per cent, agglutinated Monilia albicans, but only thirty-five reactions were of a titer of 1:160 or above. Results showed that agglutinins for Monilia were present in the serums of 30.4 per cent of 533 women and 15.7 per cent of 617 men. There is a relationship between a high titer of agglutinins in the serum and the presence of Monilia albicans in the mouth and throat.

Efficacy of Liver Therapy in Pernicious Anemia.—Sellers investigated objectively the extent of the prolongation of life of persons dying of pernicious anemia since 1926. Despite the wide differences in mortality from pernicious anemia throughout the world an abrupt decline is noted in a group of widely separated representative countries. The trends in mortality in each instance are remarkably alike. An abrupt alteration of the trend of mortality from pernicious anemia occurred in 1927 coincident with the general introduction of liver therapy as specific treatment in this disease. The low level of mortality reached in 1927 and 1928 has in general been well maintained. Reduction in mortality from pernicious anemia has been most marked at young ages but has occurred in all age groups up to 70 years.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

37: 293-432 (March) 1937

*Skeletal Changes in Chronic Hemolytic Anemias (Erythroblastic Anemia, Sickle Cell Anemia and Chronic Hemolytic Icterus). J. Caffey, New York.—p. 293.
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Diaphragmatic Hiatus Hernia. I. I. Cowan, Milwaukee.—p. 333.
Influence of Extrahiliary Disease on Function of Gallbladder: Cholecystographic Study. C. A. Good Jr. and B. R. Kirklin, Rochester, Minn.—p. 346.
Treatment of Cancer in the Region of the Ear. G. E. Pfahler and J. H. Vastine, Philadelphia.—p. 350.
Relative Importance of Histologic Analysis in Tumor Therapy. F. C. Helwig, Kansas City, Mo.—p. 358.
Microscopic Grading of Tumors: Its Interpretation, Limitations and Relation to Radiosensitivity. W. C. MacCarty, Rochester, Minn.—p. 365.
*Radium Poisoning: II. Quantitative Determination of Radium Content and Radium Elimination Rate of Living Persons. R. D. Evans, Cambridge, Mass.—p. 368.
Double Contrast Method in Roentgenography of Gastro-Intestinal Tract. M. H. Poppel, New York.—p. 379.
Unusual Congenital Anomalies: Report of Case. M. M. Pomeranz, New York.—p. 382.
Factors Influencing Quantitative Measurement of Roentgen-Ray Absorption of Tooth Slabs: VII. Sensitometric Factors. H. C. Hodge, R. B. Wilsey, G. Van Huysen and S. L. Warren, Rochester, N. Y.—p. 385.

Skeletal Changes in Anemias.—The earliest lesion of the skull that Caffey found in twenty-one cases of erythroblastic anemia studied roentgenologically was thickening of the lower frontal squamosa. Radial striations developed first in the anterior portion of the parietal bones near the sagittal suture. The sequence of thickening of the calvarium and the sequence of striation of the calvarium are described. The frontal bone was the site of the earliest and most marked thickening. The earliest lesion in the long bones was dilatation of the medullary canals with simultaneous atrophy of cortical bone and of cancellous bone. Reticulation in the long bones appeared several months after the first changes were apparent. The late skeletal changes in a long-standing severe case were osteosclerotic due to late increase in cancellous bone. Two mild cases with late onset had no diagnostic changes in the skeleton. No significant skeletal changes were found in the long bones of fifteen cases of sickle cell anemia. Ten cases showed thickening of the calvarium similar to that in erythroblastic anemia. Vertical striations of the skull were not present in any case. In contrast to erythroblastic anemia, the parietal bones showed more marked involvement than the frontal. Also in six cases of chronic hemolytic icterus no significant changes were seen in the long bones. Two cases showed thickening and striation of the calvarium similar to that of erythroblastic anemia. In both cases the parietal bones were more involved than the frontal. No roentgen or clinical signs of premature synostosis of the cranium were present in this group of six cases.

Radium Poisoning.—Evans describes a technic for determining the radium content of a living person which is many times more sensitive than former methods and permits the quantitative detection of a small fraction of a "fatal dose." No postmortem analyses, phantoms or cadavers are involved. By electrical detection of the radiations emitted by radioactive substances, these elements may be quantitatively determined in amounts millions of times smaller than would be possible by chemical analysis. In some cases the penetrating gamma radiation emitted from a material containing radioactive substances permits analysis for these substances without the necessity of removing a sample, it being sufficient to place a sensitive gamma-ray detector in the neighborhood of the material to be examined. When smaller quantities (order of a million millionth of a gram) of radium are involved a discrete sample is necessary. Part (about 45 per cent in chronic cases) of the total amount of radium stored in the skeleton and tissues of a victim of radium poisoning gives rise to radon (radium emanation) in the expired breath. The radon, and consequently the amount of radium producing it, is determined by electrical tests on the expired air. The remainder of the body radium is determined by the gamma rays from its decay product, radium C. A general method for determining the amount of a gamma-ray emitting radioactive substance in a closed and inaccessible container is described. Through its application to the feeble gamma rays observed a meter from

a victim of radium poisoning, the radium C content of the patient has been determined. The method corrects for scattered gamma rays, internal absorption of gamma rays by the body itself and for the nonuniform distribution of radium in the various bones and tissues. The quantum counters are then directly calibrated for rapid measurement of the radium C content of other human victims in terms of the observed gamma radiation near the spine, hips, jaw or chest. The rate of loss of radium by the patient is directly measured by radium analyses of the feces and urine; for chronic cases 0.005 per cent daily is eliminated, 91 per cent in the feces and 9 per cent in the urine. The mobilization of radium within the body is studied by radon analyses of specimens of alveolar air. Simple gamma-ray examinations of patients will detect chronic radium poisoning five or ten years before any clinical symptoms appear.

Annals of Medical History, New York

9: 101-200 (March) 1937

The Poet Keats' Trip to Scotland July 1818. R. Armstrong-Jones, London, England.—p. 101.
Iron Votive Offerings of St. Leonhard. J. M. Thorington, Philadelphia.—p. 111.
Claude Bernard's Posthumously Published Attack on Pasteur and Pasteur's Defense. J. M. D. Olmsted, Berkeley, Calif.—p. 114.
Early History of Elephantiasis of Scrotum. J. B. Penfold, Newcastle-on-Tyne, England.—p. 125.
Philip Syng Physick's Last Major Operation. A. Randall, Philadelphia.—p. 133.
Hamlet's Melancholy. J. W. Draper, Morgantown, W. Va.—p. 142.
Medical Thermometry. H. A. McGuigan, Chicago.—p. 148.
Comparative Study of Medicine Among Ancient Races of the East: Egypt, Babylonia and Assyria. P. J. Moorad, New Britain, Conn.—p. 155.
Doctors and the Practice of Medicine in Early Nassau County, N. Y. C. R. Hall, Garden City, N. Y.—p. 168.
The Doctor on the Stage: Medicine and Medical Men in Seventeenth Century English Drama. H. Silvette, University, Va.—p. 174.

Archives of Neurology and Psychiatry, Chicago

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Psychobiologic Unit as Pattern of Community Function. G. S. Stevenson, Red Bank, N. J.—p. 742.
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Cerebral Circulation: XLV. Vasodilation in Pia Following Stimulation of Geniculate Ganglion. H. S. Forbes, Gladys I. Nason, S. Cobb and Ruth C. Wortman, Boston.—p. 776.
Psychic Phenomena in Association with Cardiac Failure. N. D. C. Lewis, New York.—p. 782.
Psychopathology of Metaphor. W. Muncie, Baltimore.—p. 796.
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Relationship of Declining Intelligence Quotients to Maladjustments of School Children. Esther Loring Richards, Baltimore.—p. 817.
Pathogenesis of Hallucinations and Delusions: Remarks on Distinction Between Pathogenesis and Etiology in Psychiatry. M. Levin, Harrisburg, Pa.—p. 839.
Contributions to Physiology of Conditioned Reflex. W. H. Gantt, Baltimore.—p. 848.
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Modifications in Schizophrenic Reaction with Psychoanalytic Treatment. L. S. Kubie, New York.—p. 874.
*Studies in Schizophrenia: Chemical Analyses of Blood and Cerebrospinal Fluid. S. Katzenelbogen, Baltimore.—p. 881.
Personality Features and Reactions of Subjects with Migraine. H. G. Wolff, New York.—p. 895.
Prognosis in Child Psychiatry. L. Kanner, Baltimore.—p. 922.
Syphilitic Arachnoiditis of Optic Chiasm. L. Hausman, New York.—p. 929.
Colloid Cyst of Third Ventricle: Report of Case; Operative Removal with Section of Posterior Half of Corpus Callosum. J. H. Trescher and F. R. Ford, Baltimore.—p. 959.
Catathymic Crisis: Clinical Entity. F. Wertham, New York.—p. 974.

Analyses of Blood and Cerebrospinal Fluid in Schizophrenia.—Katzenelbogen reports his observations obtained in a study of nineteen different constituents in the cerebrospinal fluid of twenty schizophrenic or parergasic patients. These data were derived from special investigations of blood and cerebrospinal fluid withdrawn simultaneously and analyzed. As far as could be established in tracing the beginning of serious disorders before hospitalization, the duration of the psychoses ranged between three months and fifteen years. The main clinical facts show the presence of manifold parergasic reactions, with delusions of persecution and habit deterioration standing out conspicuously as to frequency. In only three of the twenty patients were values for all the nineteen constituents determined for both blood and cerebrospinal fluid within normal limits. In each of the remaining seventeen patients, one or another component proved to be abnormal either in the blood or in the cerebrospinal fluid or in both. With regard to frequency, the potassium content was increased in eight cases, the lactic acid content in seven, the cholesterol content of the cerebrospinal fluid in seven, the globulin content in the blood in four, the amino acid nitrogen in four, the total protein and globulin in the cerebrospinal fluid in two and the total protein and albumin in the cerebrospinal fluid in two, while the calcium content was decreased in the cerebrospinal fluid in three. The value for free cholesterol in the blood was low as compared with that for total blood cholesterol in two cases. The uric acid content of the blood was decreased in one case.

Archives of Ophthalmology, Chicago

17: 579-764 (April) 1937

Acetylcholine in Treatment of Acute Retrobulbar Neuritis. W. F. Duggan, New York.—p. 579.
Traumatic Glaucoma: Anatomic and Clinical Study. A. Tillema, Eindhoven, Netherlands.—p. 586.
Dark Adaptation as Clinical Test: Further Studies. J. B. Feldman, Philadelphia.—p. 648.
Spasm of Central Retinal Artery in Raynaud's Disease: Report of Case. R. G. Anderson and E. B. Gray, Spartanburg, S. C.—p. 662.
Glaucoma Clinic of the Herman Knapp Memorial Eye Hospital. M. J. Schoenberg and B. Esterman, New York.—p. 666.
Modified Subconjunctival Extraction of Cataract: Preliminary Report. H. C. Ernsting, Cleveland.—p. 674.
Prognosis of Postoperative Sympathetic Ophthalmia: Statistical Study. H. H. Joy, Syracuse, N. Y.—p. 677.
*Optic Encephalomyelitis: Report of Case. J. Rosenbaum, Montreal.—p. 694.
Scleromalacia Perforans: Report of Case. S. P. Oast, New York.—p. 698.
Organization of the Department of Ophthalmology of Long Island College of Medicine. J. N. Evans, Brooklyn.—p. 702.

Optic Encephalomyelitis.—Rosenbaum's patient with optic encephalomyelitis was an otherwise healthy woman, aged 34. There were rapid loss of vision of the left eye, with no recovery, and loss of vision of the right eye, with partial recovery. Paralysis of the right leg and of the abdominal muscles followed about four months after the onset of the disease in the optic pathway. The course of the ocular phenomena remained obscure until the definite signs presented themselves in the spinal cord and thus completed the picture of optic encephalomyelitis. Marked leukopenia was present during the entire course of the illness.

Archives of Surgery, Chicago

34: 565-760 (April) 1937

Peritonitis: I. Effect on Blood Pressure of Peritoneal Content in Suppurative and in Bile Peritonitis. P. H. Harmon and H. N. Harkins, Chicago.—p. 565.
Id.: II. Effect on Blood Pressure of Protein-Free Extracts of Peritoneal Content and of Filtrates from Pure Cultures of Bacteria. P. H. Harmon and H. N. Harkins, Chicago.—p. 580.
*Use of Extravasating Dye as Measure of Skin Permeability to Bacterial Invasion. M. Pijcan and S. Wheeler, Boston.—p. 593.
Juxta-Articular Adiposis Dolorosa: Its Significance and Relation to Dercum's Disease and Osteo-Arthritis. D. H. Kling, Los Angeles.—p. 599.
Treatment of Brain Abscess Associated with Extracapsular Necrosis and Suppuration. J. E. J. King, New York.—p. 631.
Incidence of Gallstones in Sweden: Correlation of Gallstones with Various Diseases and Pathologic Changes. K. M. Martensson, Stockholm, Sweden.—p. 650.
Chondromatosis of Joints. E. Freund, Venice, Fla.—p. 670.
Use of Homologous Bone Grafts in Cases of Osteogenesis Imperfecta. A. D. Smith, New York.—p. 687.
Traumatic Rupture of Congenital Cyst of Choledochus. T. G. Blocker Jr., H. Williams and J. E. Williams, Galveston, Texas.—p. 695.
Prevention of Formation of Urinary Calculi in Patients with Orthopedic Problems. C. C. Higgins and F. C. Schlumberger, Cleveland.—p. 702.
Phlegmon of Colon: Report of Case. J. Burke, Buffalo.—p. 721.
Review of Urologic Surgery. A. J. Scholl, Los Angeles; F. Hinman, San Francisco; A. von Lichtenberg, Budapest, Hungary; A. B. Hepler, Seattle; R. Gutierrez, New York; G. J. Thompson, J. T. Priestley, Rochester, Minn., and V. J. O'Conor, Chicago.—p. 732.

Extravasating Dye as Measure of Skin Permeability to Bacterial Invasion.—The subject of disinfection of the skin divides itself into surgical disinfectants and the disinfective power of the skin itself. It is with the latter aspect

that Pijoan and Wheeler are concerned. While results in the literature proved suggestive, they felt that the methods used did not afford a very exact evaluation of percutaneous bacterial invasion as an active process. They thus found it necessary (1) to measure the degree and presence of percutaneous bacterial invasion, (2) to determine how rapidly the self-disinfecting power is restored to the shaven skin and (3) to determine if shaving modifies the intracutaneous spread of bacteria. Their contention is that shaving increases the susceptibility of the skin to bacterial penetration, possibly owing to minute abrasions caused by the razor on the keratinized epithelium or to a defense process in the horny layer. It seems reasonable to suggest, on the bulk of evidence contributed by other investigators and by their experiments, that shaving before an operation should take place at least thirty hours previous to the incision. It is not denied that after an operation more bacteria penetrate the wound than the surrounding skin, even though freshly shaven, but they suggest that newly shaven skin is more likely to have pathogenic organisms lodged in the cutaneous tissues, and it is through these tissues that the initial incision is made. An azo dye, T-1824, employed intravenously delimits the area of bacterial invasion and inflammation by the blue stain it imparts to infected tissues.

Colorado Medicine, Denver

34: 225-296 (April) 1937

Interrelation of Surgical and Medical Care in Treatment of Biliary Tract Disease. H. A. Black, Pueblo.—p. 238.
Blood Dyscrasias in Childhood. J. W. Amesse and W. W. Barber, Denver.—p. 241.
Occurrence of Carcinoma in Clinically Benign Prostatic Obstructions. G. M. Myers, Pueblo.—p. 248.
Diagnosis and Treatment of Peptic Ulcer. T. D. Cunningham and J. C. Mendenhall, Denver.—p. 261.

Florida Medical Association Journal, Jacksonville

23: 413-476 (March) 1937

Treatment of Erysipelas by Ultraviolet Ray. Annette M. Bieker, St. Petersburg.—p. 427.
*Pruritus Without Primary Skin Lesions. L. B. Mount, St. Petersburg. —p. 429.
The Progress of Medicine. A. J. Wood, St. Petersburg.—p. 433.
Application of Psychiatry to School and Business. W. C. McConnell, St. Petersburg.—p. 435.

Pruritus Without Primary Skin Lesions.—Mount defines pruritus as a disturbance of the nerve elements of the skin, a paresthesia. It is an anomaly of feeling, not dependent primarily on local lesions or changes or local irritations, and not denoting any increase or decrease of the normal sensations. Jacquet claims that an itchy area is in a state of prurigenous hyperesthesia and that following a prolonged scratching it goes into a state of hypesthesia. The etiologic factors producing itching of the skin may be divided into internal and external. The internal may occur by means of the nervous system or through the blood or lymph. The dependence on the psyche must be borne in mind therapeutically because it is sufficient to keep out of the patient's consciousness the fact that healing has already been accomplished. Granted that the sickness causing the itching has been cured, the pruritus may still torment the patient. He fears it, he thinks about it, he broods over it; in fact, it becomes the all-possessing idea and that is sufficient through psychic means to keep up the paresthesia which was set loose by somatic disturbances removed by this time. The physician must be keen enough, whenever possible, to charm away the suggestive influence by suggestion as well as by a firm assurance of the cure. Sometimes itching of the skin is due to organic changes in the central nervous system. Various central organic conditions have had pruritus associated with them. In itching by way of the hematogenous route there must be in the blood stream changes that alter the nerve endings in the skin, either the corpuscles of Vater and Meissner and the end knobs of Kraus or the free, fine, nonmedullated fibrillae. There is a large group of cases in which the pruritus is due to a susceptibility of the skin to some external excitant. This excitant may be of the most varied type, for instance, a puzzling recurrent pruritus of the left cheek due to the wearing of a boutonnière, in this case an aster; the localized itching of the neck in women due to exposure following shingling and bobbing of the hair; a pruritus of the face coming each week and finally found to be caused by a susceptibility to the colored sheet of the Sunday newspaper; the itching due to face powders, perfume itself or the odor of the latter. The causal differential diagnosis depends much on the type of pruritus. With a localized case, one certainly must seek an external irritant as the excitant. With a process involving the vulva or anus, fissures, hemorrhoids or gynecologic conditions must be excluded. Failure to examine the urine is inexcusable, as is also the failure to search for body parasites. With the generalized type, the causation may be drugs, one of the lymphomas, diabetes, focal infection, uricemia, or one of the variety of excitants which can be differentiated only by a careful study of the body liquids and the blood.

Journal of Allergy, St. Louis

8: 221-320 (March) 1937

Oral Pollen Therapy: Experimental Considerations. C. Bernstein Jr. and J. B. Kirsner, Chicago.—p. 221.
Attempt to Produce Atopic Inhibitor Antibody in Nonatopic Individuals. M. R. Lichtenstein, Chicago.—p. 228.
Studies on Tetanus Toxoid: I. Active Immunization of Allergic Individuals with Tetanus Toxoid, Alum Precipitated, Refined. H. Gold, Chester, Pa.—p. 230.
Skin Reactivity in Cases of Asthma of Short Duration. G. L. Waldbott and M. S. Ascher, Detroit.—p. 246.
Hematologic Response in Food Allergy Eosinophilia in Leukopenic Index. T. L. Squier and F. W. Madison, Milwaukee.—p. 250.
*Is There a Correlation Between Food Dislikes and Food Allergy? W. T. Vaughan, Richmond, Va., and D. M. Pipes, Shreveport, La.—p. 257.
Allergic Edema (Quincke) Accompanied by Unusual Necrosis. C. E. Benjamins, Groningen, Netherlands.—p. 262.
Fatal Spontaneous Pneumothorax and Subcutaneous Emphysema in an Asthmatic: Report of Case with Bronchoscopic Findings. W. B. Faulkner Jr. and R. J. Wagner, San Francisco.—p. 267.

Correlation Between Food Dislikes and Food Allergy.—In the objective as well as in the amnestic study, Vaughan and Pipes find that about one patient out of five will mention food dislikes that are subsequently found to be related to allergic reactivity. Furthermore, among the 20 per cent in which there is a correlation, many additional foods are mentioned in which there is no correlation. When foods mentioned instead of cases are considered, a much wider discrepancy is found. Among the major and the minor allergic persons of the amnestic group a total of 1,656 foods were mentioned that did not correspond as compared with a total of eighty-four foods that did correspond. In the objective group, foods that did not correspond were mentioned ninety-six times, as compared with seven foods that did correspond with positive skin reactions and seven that corresponded with borderline skin reactions. While foods disliked may be responsible for food allergy, this is not the rule, and foods disliked cannot be relied on as indicative of allergic sensitization. The one exception is those instances in which gastro-intestinal symptoms follow the ingestion of the allergenic food after such a short interval that the patient has himself recognized a relationship of cause and effect.

Journal of Bacteriology, Baltimore

33: 243-338 (March) 1937

Cultivation of Cellulose-Splitting Bacteria on Membranes of Acetobacter Xylinum. M. Aschner, Jerusalem, Palestine.—p. 249.
Bacteriostatic and Bactericidal Action of Great Salt Lake Water. C. E. Zobell, D. Q. Anderson, Berkeley, Calif., and W. W. Smith, Salt Lake City.—p. 253.
*Streptococcus Salivarius. C. E. Safford, J. M. Sherman and H. M. Hodge, Ithaca, N. Y.—p. 263.
Streptococcus Faecalis. J. M. Sherman, J. C. Mauer and Pauline Stark, Ithaca, N. Y.—p. 275.
Streptococcus Equinus. H. M. Hodge and J. M. Sherman, Ithaca, N. Y. —p. 283.
Open System Respirometer for Study of Gaseous Metabolism of Micro-Organisms. S. E. Donovick and T. D. Beckwith, Los Angeles.—p. 291.
Filtration of Treponema Pallidum and Treponema Novyi Through Collodion Membranes. Evelyn B. Tilden, Chicago.—p. 307.
Attempts to Reveal Sex in Bacteria; with Some Light on Fermentative Variability in Coli-Aerogenes Group. J. M. Sherman and Helen Upton Wing, Ithaca, N. Y.—p. 315.
Water Content of Bacterial Spores. B. S. Henry and C. A. Friedman, Seattle.—p. 323.
Optical Activity of Lactic Acid Produced by Lactobacillus Acidophilus and Lactobacillus Bulgaricus. Lenore M. Kopeloff and N. Kopeloff, with technical assistance of J. L. Etchells and E. Posselt, New York. —p. 331.

Streptococcus Salivarius.—Safford and his co-workers limited their study to 322 cultures of nonhemolytic streptococci isolated from human throats. The isolations were made by

the application of quantitative methods so as to limit the collection to the predominating types. Streptococcus salivarius was found to be the prevailing type and 290 of the cultures studied are believed to be typical of the species. The remaining thirty-two cultures varied somewhat from the type, but scarcely enough to be considered separate species in the light of present knowledge of the streptococci. Streptococcus salivarius may be readily differentiated from any of the clearly established species of the streptococci. A full description of the organism is given.

Journal of Clinical Investigation, New York

16: 169-278 (March) 1937

Studies of Gonococcic Infection: I. Study of Mode of Destruction of Gonococcus in Vitro. W. W. Spink and C. S. Keefer, Boston.—p. 169.
*Id.: II. Bacteriolytic Power of Whole Defibrinated Blood of Patients with Gonococcic Arthritis. W. W. Spink and C. S. Keefer, Boston.—p. 177.
Clinical Uses of Human Serums Preserved by Lyophile Process. A. C. McGuinness, J. Stokes Jr. and S. Mudd, Philadelphia.—p. 185.
Response of Normal Individuals and Patients with Diabetes Insipidus to Ingestion of Water. T. Findley Jr. and H. L. White, St. Louis. —p. 197.
Parathyroid Hyperplasia in Rabbits Produced by Parenteral Phosphate Administration. T. G. Drake, F. Albright and B. Castleman, Boston. —p. 203.
Prognostic Value of Precipitin Test in Meningococcic Meningitis. H. E. Alexander, New York and Baltimore.—p. 207.
*Thermal Injuries: Effects of Freezing. H. N. Harkins and P. H. Harmon, Chicago.—p. 213.
Absorption and Excretion of Calcium and Phosphorus in Three Patients with Colostomy and Ileostomy. R. M. Johnson, Minneapolis.—p. 223.
*Glycine Synthesis in Patients with Progressive Muscular Dystrophy. A. Thomsen, Copenhagen, Denmark.—p. 231.
*Results of Immunization by Means of Active Virus of Human Influenza. J. Stokes Jr., Alice D. Chenoweth, A. D. Waltz, R. G. Gladen and Dorothy Shaw, Philadelphia.—p. 237.
Absorption of Hexoses from Upper Part of Small Intestine in Man. J. Groen, Boston.—p. 245.
Galactose Tolerance in Hyperthyroidism. T. L. Althausen and G. K. Wever, San Francisco.—p. 257.
Studies of Urticarial Response to Blue and Violet Light in Man. H. F. Blum and R. J. West, Berkeley, Calif.—p. 261.

Bacteriolytic Power of Defibrinated Blood in Gonococcic Arthritis.—Spink and Keefer find that the whole blood from normal individuals is capable of destroying varying numbers of gonococci obtained from patients with infection. Strains of gonococci obtained from local lesions, such as urethritis, are often killed in larger numbers than are those derived from patients with arthritis. Destruction in vitro occurs by lysis and this is a function of the blood plasma and not of the polymorphonuclear leukocytes. During and following the course of a gonococcic infection, especially arthritis, there is evidence of an increase in the bacteriolytic titer of the blood plasma. This is an immune response that can be regarded as an aid in the destruction of the organism. Patients tend to develop a higher bacteriolytic titer in their serum against their own organism than against other strains. The gonococcus complement fixation reaction is a valuable method in the diagnosis of arthritis caused by the gonococcus. The titer of complement of the blood serum is not depressed during the course of gonococcic arthritis. Agglutination tests were of no value in diagnosis, since they were invariably negative. The possible significance of bacteriolysins in gonococcic infections is discussed.

Thermal Injuries.—Harkins and Harmon consider the problem of freezing from the standpoints of the local lesion and therapeutic management of the frozen member and of the general effects of freezing, including the possible presence of secondary shock and depression of the general body temperature. Their work did not help to elucidate the local treatment of a frozen member. Although experiments indicated no difference in the response of dogs' legs and rabbits' ears to slow and rapid thawing, the experiments were not conclusive. Thus this aspect of the question is still left in abeyance, although doubt is cast on the efficacy of the time-honored custom of gradual thawing. The extreme drop in general body temperature recorded in several of the experiments may have been influenced by the barbital narcosis, but the restoration of a more normal body temperature in several instances after the removal of the ice augurs against this to some extent. It is quite possible that such low temperatures would not have been obtained if a less severe freezing agent than solid carbon dioxide had been used. However, these low readings indicate that even the higher mammals may be relatively poikilothermic under certain conditions. Secondary shock is of interest in freezing. The lowered bleeding volume, the changes in blood concentration, including increase in hemoglobin percentage and hematocrit reading, and the marked leakage of plasma-like fluid into the tissues that have been frozen indicate that there is a similarity between the effects of freezing and burning. Both these thermal injuries produce a local reaction and resultant secondary shock. Furthermore, the secondary shock following thermal injury is similar to secondary traumatic shock following other types of injury. The similarity in the reaction of the mammalian organism to injury is most apparent when the comparison is made between the different types of thermal injury. Under natural conditions it is difficult to conceive, however, a situation in which enough of the body could be frozen to produce shock without the effect of exposure to cold being an important if not a dominating factor. In burns, on the other hand, extensive local burning without rise in general body temperature is the rule rather than the exception.

Aminoacetic Acid Synthesis in Patients with Progressive Muscular Dystrophy.—Thomsen performed experiments on six patients with typical cases of progressive muscular dystrophy. On the day of the experiment and the day preceding it the patients were served an aminoacetic acid-free diet consisting of milk, cream, butter, eggs, sugar, bread baked from potato meal and whites of egg and courses prepared from these ingredients with the addition of salt and spices. It was the author's aim to give the greatest possible amount of benzoic acid during the day of the experiment, in order to get an acceptable amount of aminoacetic acid synthesized. He found that patients with progressive muscular dystrophy can synthesize almost unlimited amounts of aminoacetic acid for use in the synthesis of hippuric acid. From this the conclusion is drawn that progressive muscular dystrophy cannot be caused by a defective synthesis of aminoacetic acid and that the beneficial effect of aminoacetic acid treatment cannot be due to aminoacetic acid acting as a supplement to the organism's own insufficient production, as held by Thomas and co-workers. The experiments showed no reduction of creatinuria when benzoate was fed, so that this observation does not support the hypothesis that creatine is synthesized from aminoacetic acid.

Immunization with Active Virus of Influenza.—Stokes and his associates describe the intramuscular vaccination with active swine and human influenza virus of a group of persons in a large state colony, in the presence of an oncoming epidemic of "influenza." They vaccinated 110 persons with human virus and 138 persons with swine virus, while 550 were not vaccinated. There was a 2.7 per cent incidence of febrile cases in the group vaccinated with human virus as compared with an incidence of approximately 12.5 per cent in the other two groups. This difference is statistically significant. In a comparison of the incidence of the afebrile, the "common cold" type of infection, no significant difference was noted in the three groups. The presence of the human influenza virus during the epidemic as a probable causative agent was determined by means of neutralization tests on the serum of a number of hospitalized children in the epidemic area who had not been vaccinated. During the height of their illness no neutralizing antibodies against the human virus were found, whereas during convalescence they appeared for the first time. Studies of the nasal and throat washings from the febrile cases were not sufficient to furnish significant data. Resistance to infection and neutralizing properties of serum may be associated but probably do not always parallel each other.

Journal of General Physiology, New York

20: 511-648 (March 20) 1937. Partial Index

Effect of Organic Ions on Membrane Potential of Nerves. W. Wilbrandt, Philadelphia.—p. 519.
Studies in Blood Coagulation: V. Coagulation of Blood by Proteolytic Enzymes (Trypsin, Papain). H. Eagle and T. N. Harris, Philadelphia. —p. 543.
Action of Ultraviolet Light on Spores and Vegetative Forms of Bacillus Megatherium Sp. F. Heřčík, New York.—p. 589.
Substances Affecting Adult Tissue in Vitro: I. Stimulating Action of Trypsin on Fresh Adult Tissue. H. S. Simms and Nettie P. Stillman, New York.—p. 603.
Id.: II. Growth Inhibitor in Adult Tissue. H. S. Simms and Nettie P. Stillman, New York.—p. 621.

Journal Industrial Hygiene & Toxicology, Baltimore

19: 111-154 (March) 1937

Silicosis and Related Conditions. L. U. Gardner, Saranac Lake, N. Y. —p. 111.
Fog Disaster in the Meuse Valley, 1930: Fluorine Intoxication. K. Roholm, Copenhagen, Denmark.—p. 126.
Silica and Silicate Solubilities. A. C. Titus, Boston.—p. 138.
Phase of the Problem of Acclimatization to High Temperatures. Mircea Mezincescu, Boston.—p. 146.

Journal of Lab. and Clinical Medicine, St. Louis

22: 547-656 (March) 1937

Effect of Blood Pressor Episodes on Basophilic Aggregation Counts. G. H. Gowen, Springfield, Ill.—p. 547.
Isotransplantation of Thyroid Glands in Dogs. R. G. P. Shafiroff and K. Leora McCloskey, New York.—p. 553.
*Treatment of Rheumatoid Arthritis with Formalized Streptococcus Filtrate (Toxoid). A. S. Gordon, Brooklyn.—p. 559.
Blood Chemistry in Hookworm Anemia. G. G. Villela and J. C. Teixeira, Rio de Janeiro, Brazil, South America.—p. 567.
*Snake Venom (Moccasin) in Treatment of Epilepsy. I. Finkelman, Chicago.—p. 572.
Duration of Immunity Following Diphtheria Prophylaxis. F. G. Jones, Indianapolis.—p. 576.
Rouleau Formation. R. Kegerreis, Oak Park, Ill.—p. 581.
Human Infection with Monilia: Report of Case with Cultural Data. S. H. Black and Bernice E. Eddy, Carville, La.—p. 584.
Bacteriophage Therapy in Bacillary Dysentery. Sylvia Vaill and Gladys L. Morton, New York.—p. 594.
Diuretic Action of Glucophylline. A. H. Maloney, A. F. Burton and J. W. L. Robinson, Washington, D. C.—p. 600.
Hemoglobin Studies on College Women, with Especial Reference to Effect of Menstruation. Dorothy Duckles and C. A. Elvehjem, Madison, Wis.—p. 607.
Kahn Test in Malaria. A. E. Taussig and M. N. Orgel, St. Louis.—p. 614.
Oil Aspiration Pneumonia: Report of Two Autopsied Cases in Adults. G. H. Fetterman, Mayview, Pa.—p. 619.
Studies on Constitution and Peptic Ulcer: IV. Salivary Secretion Test in Peptic Ulcer Patients and Normal Subjects. H. Necheles and P. Levitsky, Chicago.—p. 624.

Treatment of Rheumatoid Arthritis.—Gordon isolated strains of streptococci from 100 patients with active rheumatoid arthritis. Cultures were made from roots of teeth, tonsils, throat, nasopharynx, nose, sinus puncture, urine and stool. These were grown in beef heart broth, with a p_H of from 7.7 to 7.8. Only the strains having potent soluble toxins were used. The filtrates were then treated with formaldehyde, the same as in diphtheria toxoid. Dilutions were then made of 1:10, 1:100, 1:1,000 and 1:10,000. Treatment by subcutaneous injection was begun with 0.1 cc. of the highest dilution and increased gradually, depending on the patient's reaction to the original test dose of the toxin and the patient's reaction to the therapeutic dose. Individual dosage is essential and must be worked out for each patient. A very slight local reaction at the site of injection was considered favorable and was used as a guide in raising the dosage. The intradermal tests were used as indicators of the type of streptococcus probably responsible and the one giving the strongest reaction was used in treatment, but only in single strain. Whenever possible, autogenous material was used. Otherwise treatment was given with the stock strain giving the strongest reaction. Treatment was given twice a week and continued for at least three to six months. Occasionally a patient reached 0.1 cc. of a 1:10 dilution and could take no higher dosage except at the risk of a marked local reaction lasting many days, and at times a focal or constitutional reaction. The latter reactions are to be avoided, as they tend to bring the patient into a higher allergic state and interfere with the attempted desensitization. The clinical results, subjective and objective, were not only encouraging but astounding, even though not manifest at times before some months had elapsed. There were objective signs of definitive improvement, locally and constitutionally. Treatment was given to many types of patients in various stages of the disease.

Snake Venom in Treatment of Epilepsy.—Finkelman treated eight institutional epileptic patients for nine weeks with snake venom (moccasin). Injections of a 1:3,000 venom solution were given, beginning with an initial dose of 0.2 cc. and increasing by 0.2 cc. until a dose of 1 cc. was reached. The injections were given twice a week until the maximal dose was reached, when they were administered at weekly intervals. The course of treatment lasted nine weeks. A local reaction in the form of erythema and swelling at the site of injection and a general reaction evidenced by an eosinophilia were observed. The frequency and severity of the seizures were compared during the periods of no treatment, during phenobarbital therapy and during the administration of venom. During the administration of venom the frequency and severity of the seizures were greater than during the other periods and the patients were more irritable. There was no correlation between the seizures and the eosinophilic response. Venom therapy does not induce a refractory state to convulsive seizures in institutional epileptic patients but renders them more susceptible to seizures. This conclusion probably is applicable also to extramural epilepsy.

Journal of Nervous and Mental Disease, New York

85: 373-504 (April) 1937

Contribution on Origin of Increased Protein in Cerebrospinal Fluid of Tumors of Central Nervous System. J. S. Deane, New York.—p. 373.
*Central Nervous System Complications in Subacute Bacterial Endocarditis. R. N. DeJong, Ann Arbor, Mich.—p. 397.
Posterior Fossa Tumors Without Papilledema. I. Cohen, New York.—p. 411.
Babinski Sign Modification Obtained Without External Stimulation: New Sign: Preliminary Report. M. H. Weinberg, Pittsburgh.—p. 416.
Mechanism of Narcolepsy: Physiology of Autonomic Neuro-Endocrine System of Twelve Narcoleptics, Compared to Twelve Normals. E. G. Lion, San Francisco.—p. 424.

Central Nervous System in Endocarditis.—In reviewing the cases of subacute bacterial endocarditis that were seen in the University Hospital during a period of five years, DeJong found that sixty-eight cases were observed in which the diagnosis was incontrovertible. Seventeen of the sixty-eight diagnosed cases were found to present clinical or pathologic evidence of involvement of the nervous system. The central nervous system was examined in thirteen of the twenty-three necropsies, and in all these cases there were pathologic changes in the brain and/or the meninges. In six of them there were emboli or infarcts secondary to emboli. In four there were emboli in one of the major cerebral vessels or large areas of infarction secondary to a major embolism, in one there were multiple emboli with septic infarcts becoming abscesses, and in one there were multiple anemic infarcts. All these cases also showed marked edema and congestion of the brain. There were four necropsies in which there was purulent, metastatic meningo-encephalitis, mainly on the basis of multiple small abscesses in the brain substance and meninges. In addition there were three cases that showed edema, congestion and hyperemia of the brain without more specific changes. Ten of the seventeen cases with involvement of the nervous system showed definite neurologic syndromes on clinical examination. Six were admitted to the hospital because of the complications of the nervous system, two presenting the picture of meningoencephalitis and four exhibiting evidence of embolic phenomena. In the four other cases neurologic manifestations developed that were recognized while the patients were under observation.

Journal of Urology, Baltimore

37: 335-406 (March) 1937

Human Cloaca for Over Twenty-Five Years Without Impairment of Health. R. P. Middleton, Salt Lake City.—p. 335.
Supernumerary Ureters with Extravesical Openings. H. D. Furniss, New York.—p. 341.
Care of Bilateral Cutaneous Ureterostomy. A. Hyman and H. E. Leiter, New York.—p. 361.
Diverticulum of Bladder: Report of Case of Spontaneous Rupture. R. L. Creekmur, Richmond, Va.—p. 363.
Unusual Intravesical Projection of Enlarged Prostate Gland. G. J. Thompson, Rochester, Minn.—p. 367.
*Tuberculosis of the Prostate Gland. R. A. Moore, New York.—p. 372.
Chromogenic Acid-Fast Bacillus Infection of Urinary Tract. G. Sewell, J. Kasper and Norma Bycom, Detroit.—p. 385.
Lymphogranuloma Inguinale. C. L. Wilmoth, Denver.—p. 394.
Renal Calculi: New Method for Qualitative Analysis. T. J. Domanski, Jersey City, N. J.—p. 399.

Tuberculosis of the Prostate Gland.—Moore made microscopic examinations of the sections of 678 prostates. There were 163 cases of tuberculosis of one or more organs. This is the result of macroscopic examination only. In these 163 cases tuberculosis of the prostate was found in twenty (12.3 per cent). There was bilateral involvement in thirteen and

unilateral in seven. Eleven of the twenty cases were diagnosed in the gross. In the remaining nine cases the lesions were small with a minimal amount of caseation. If caseation is not present, the identification of the small yellow tubercle among the normally yellow granular glands is difficult. Typically, the lesions are located in the peripheral parts of the posterior and lateral lobes. There are focal areas with an irregular scalloped border which may become confluent. They are rubbery or crumbly in consistency and grayish yellow or yellow. As a rule there are larger lesions at the periphery, with smaller lesions converging along the lines of the ducts. Carcinoma gives irregular white or whitish yellow foci, but they do not have a scalloped border and are firmer in consistency. Inspissation of a lipoid-rich secretion gives a yellow crumbly mass but is regular in outline and may be shelled out to leave a cavity, the walls of which are smooth. The seminal vesicles may or may not be involved. In this series they were involved in only 15 per cent of the cases. The ejaculatory ducts are involved with the vesicle and the sharply outlined caseous duct is very typical. The microscopic lesions readily divide themselves in two classes: caseous foci and miliary tubercles. The earliest caseous lesion that has been observed consists of a central mass of necrotic acidophilic and basophilic cellular débris in the wall of an acinus just beneath the epithelium. The miliary tubercle is similar to those in other organs. It is clearly in the stroma and not related to acini. There is usually a central giant cell with surrounding epithelioid cells and lymphocytes. It seems most probable that the bacilli in most cases reach the prostate through the blood stream and first invade the periacinous tissue and acinous lumens. There is histologic or correlative evidence that the prostatic lesion is secondary to other urogenital tuberculosis in less than 20 per cent of the cases.

Michigan State Medical Society Journal, Lansing

36: 131-210 (March) 1937

The Laryngologic Causes of the Great War. L. Clendening, Kansas City, Mo.—p. 131.
Carbon Monoxide Poisoning. W. H. MacCraken, Detroit.—p. 139.
The Relationship of the Michigan Department of Health to the Practicing Physician. C. C. Slemons, Lansing.—p. 141.
Multiple Neurofibromatosis of von Recklinghausen. R. F. Weyher, Detroit.—p. 149.
Acute Cholecystitis. C. D. Brooks, Detroit.—p. 154.
Serpent Emblems of Medicine. H. L. Arnold Jr., Ann Arbor.—p. 157.

Minnesota Medicine, St. Paul

20: 199-268 (April) 1937

The Doctor and Tuberculosis of the Future. H. E. Kleinschmidt, New York.—p. 199.
Present Status of First Infection Tuberculosis. V. O. Wilson, Baltimore.—p. 206.
Malignancy Occurring in Admissions to Glen Lake Sanatorium. C. K. Petter and E. P. K. Fenger, Oak Terrace.—p. 209.
The Name of the Doctor. A. N. Collins, Duluth.—p. 215.
Thyroiditis. M. Nordland, Minneapolis.—p. 218.
*Chronic Hyperthyroidism: Nodular Goiter. T. O. Young and C. I. Krantz, Duluth.—p. 223.
Therapeutic Use of Convalescent Serum in Mumps. R. G. Hinckley, Minneapolis.—p. 227.
Hyperinsulinism with Resection of the Pancreas. W. C. Carroll, St. Paul.—p. 229.
Hemorrhoidectomy: Plastic Operation. N. D. Smith, Rochester.—p. 233.
Proposed New Diagnostic Test for Peripheral Arterial Insufficiency. C. S. Reynolds, Ah-Gwah-Ching.—p. 236.
Fracture of the Os Calcis: Apparatus for Traction. W. W. Nauth, Winona.—p. 238.

Chronic Hyperthyroidism.—Young and Krantz contend that too much emphasis has been placed on the noncritical acceptance of the results of the basal metabolic rate. This has meant that certain patients have been needlessly operated on and that others, who would have been benefited greatly by operation, have not. Too careful evaluation of the history and physical examination cannot be made. The metabolism test should be used not as a basis for diagnosis but as added evidence for or against hyperthyroidism. The exclusive acceptance of hyperthyroidism, because of an elevated basal metabolic reading, may in many cases lead to an erroneous diagnosis. Full knowledge of the fact that such conditions as nephritis with hypertension, malignant conditions, asthma, polycythemia, pernicious anemia and the leukemias may and do cause an elevation of the basal metabolism must be accepted. Such an elevation, without goiter or clinical signs of hyperthyroidism, should suggest to the clinician a repetition of the test, plus a careful clinical search for the other factors that might be responsible. Of twenty-three cases of hyperthyroidism in nodular goiter in which there was a basal rate of from —34 to +20, nervousness was complained by all before operation, while after operation this symptom had disappeared. In nineteen cases there was tremor prior to operation and in four this symptom remained afterward. Emotional instability was present in twenty patients and nine still complained of this to some degree. Cardiac palpitation was complained of by four individuals and this symptom disappeared entirely after operation. Tachycardia was a common complaint, being present in twenty-two cases, but only in two was this noted to any degree later. Dyspnea was present in twenty-one individuals and it still persisted in eight after operation. Strength was below par in sixteen, but it was regained in all after operation, while loss of weight was regained in the seventeen patients who had noted it. Seventeen, or 73.9 per cent, of the patients stated that they had been cured by the operation and were now in normal health. In six, or 26.1 per cent, there had been improvement, but in no case did the operation fail to produce beneficial results. The lowest basal metabolic rate before operation was —34. After operation the rates varied from —30 to +16. The mean value for the rate before operation was found to be +2, while after operation the value had dropped to —1.6, a lowering of 3.6 points following thyroidectomy.

New York State Journal of Medicine, New York

37: 543-632 (March 15) 1937

Cesarean Section. J. K. Quigley, Rochester.—p. 543.
Aural Vertigo. E. M. Atkinson, New York.—p. 555.
Hyperthyroidism in Children. G. E. Beilby and J. C. McClintock, Albany.—p. 563.
Clinical Experience with Colloidal Sulfur: In Treating Mixed and Hypertrophic Arthritis. M. M. Clark, Rochester.—p. 569.
Streptococcic Meningitis: Report of Two Recoveries. F. Coonley, St. George.—p. 573.
Retinal Method of Identification: New System of Classifying Retinal Patterns. C. Simon, New York.—p. 577.
Syphilis in Pregnancy. S. S. Paky, New York.—p. 585.

Radiology, Syracuse, N. Y.

28: 261-390 (March) 1937

Errors in X-Ray Diagnosis of Industrial Injuries. W. W. Watkins, Phoenix, Ariz.—p. 261.
Evacuation of Gallbladder in Peptic Ulcer Patients. E. A. Boyden and P. M. Berman, Minneapolis.—p. 273.
Rôle of Vegetative Nervous System in Production of Motor Phenomena Observed in Upper Digestive Tract. A. C. Siefert, Oakland, Calif.—p. 283.
Noncarcinomatous Tumors of Stomach. R. A. Carter and D. R. Laing, Los Angeles.—p. 301.
Hernia of Cardiac End of Stomach Through Diaphragm. M. F. Dwyer, Seattle.—p. 315.
*Primary Malignancy of Small Intestine. E. W. Rowe and J. M. Neely, Lincoln, Neb.—p. 325.
Mobility of Antrum, Pylorus, Duodenum and Gallbladder in Health and Disease: Influence of Mobility in Functioning of These Organs in Biliary Tract. N. B. Newcomer and Elizabeth H. Newcomer, Denver.—p. 339.
Attempt to Castrate Chick Embryo with X-Rays. J. M. Essenberg, Chicago.—p. 352.
X-Ray Diffraction Studies of Globular Proteins: III. Action of Formaldehyde on Proteins. G. L. Clark and J. H. Shenk, Urbana, Ill.—p. 357.
Neoplasms Involving the Duodenum. S. Weintraub and A. Tuggle, New York.—p. 362.
Vanishing Lungs: Case Report of Bullous Emphysema. R. M. Burke, Sulphur, Okla.—p. 367.

Primary Malignant Growth of Small Intestine.—Rowe and Neely state that, as a rule, symptoms of malignant tumors of the small intestine are vague before the onset of complete obstruction. Early appearance of visible peristalsis in any part of the abdomen and occult blood in the stool should make one think of tumor of the small intestine. Cases are usually diagnosed by the surgeon as intussusception or obstruction of the intestine, and the true pathologic condition has been revealed either at operation, biopsy or necropsy. Intestinal obstruction, intussusception, acute abdomen and exploration of a suspected tumor mass are the common preoperative reasons given for the operation. In most cases the roentgen examination, if

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employed, has consisted of preliminary roentgenography or a routine gastro-intestinal examination, not timed for the special observation of the small intestine. Certain conditions and drugs must be understood or they complicate the picture. Hyperthyroidism causes increased motility. Myxedema causes slowness and slowed evacuation. Inanition delays evacuation. Loss of consciousness stops all movements. Atropine slows all movements. Fat delays grosser movements, and achylia increases motility. The roentgen examination of the small intestine, properly carried out, consumes time and is a relatively expensive procedure. In properly selected cases it will disclose the solution to an otherwise puzzling problem. Clinicians are recognizing more and more the value of a careful examination in obscure lesions of the gastro-intestinal tract. Positive changes depend on the stage of the disease. They are not always infallible, and because of the lateness of an opportunity to study the usual case, the observations may not be very determinate. Even positive signs may not be pathognomonic, nor does a negative examination exclude the possibility of a tumor. There must be careful and intelligent correlation of the clinical observations with the objectives of the roentgen examination. Study of the small intestine should begin when the stomach first begins to empty. After the examination of the stomach, further observation of the small intestine should be made at intervals of half an hour—at six hours for ileum, at nine hours for the ileac stasis and again at twenty-four hours for occasional ileac stasis. Ileac stasis, or gas, in the small intestine always needs explanation. A barium sulfate enema should be employed not only for colon but also for a complete ileac study. Sometimes the contrast enema is an advantage.

South Carolina Medical Assn. Journal, Greenville

33: 47-70 (March) 1937

Pathologic Grading of Malignant Tumors. T. M. Peery, Charleston.—p. 47.

Otitic Brain Abscess. N. O. Eaddy, Johnsonville, and R. Sekerak, Bridgeport, Conn.—p. 49.

Treatment of Mechanical Intestinal Obstruction by Duodenal Tube and Suction. C. R. F. Baker, Sumter.—p. 53.

Surgery, Gynecology and Obstetrics, Chicago

64: 721-848 (April) 1937

Spina Bifida Urinary Incontinence: Report of Cystometric Studies in Series of Thirty Cases with Some Suggestions Regarding Their Clinical Management. H. R. McCarroll, St. Louis.—p. 721.

Carcinoma of Colon: Study of Thirty-Eight Cases. W. F. Gemmill, York, Pa.—p. 738.

*Carbohydrate Metabolism Disturbance in Osteoporosis and Paget's Disease: Associated Soft Tissue Disturbances and Results of Various Therapeutic Procedures. R. C. Moehlig and S. Adler, Detroit.—p. 747.

Physiology of Human Cervical Mucosa. A. Wollner, New York.—p. 758.

Postoperative Wound Complications: Clinical Study with Especial Reference to Use of Silk. P. Shambaugh, Chicago.—p. 765.

*Severe and Fatal Reactions Following Intravenous Use of Gum Acacia Glucose Infusions. W. E. Studdiford, New York.—p. 772.

Uretero-Intestinal Implantation by Aseptic Method with Divisible Carrier: Modification of Simple Seven Suture Method with Probe and Cautery. F. Hinman, San Francisco.—p. 785.

Modified Agnew's Operation for Syndactylism. H. D. Cogswell and H. M. Trusler, Indianapolis.—p. 792.

Arthrodesis of Foot in Infantile Paralysis. V. L. Hart, Minneapolis.—p. 794.

Visscher-Bowman Chemical Test for Pregnancy and Urinary Pigment. J. F. Sheehan, Boston.—p. 806.

Intussusception During Pregnancy. L. Chaffin, V. R. Mason and J. M. Slemons, Los Angeles.—p. 811.

Principles of Pneumolysis. J. W. Cutler, Philadelphia.—p. 820.

Spinal Fixation: Ultimate Results in Four Cases with Pott's Disease, Verified at Secondary Operation. W. Ackermann, New York.—p. 826.

Use of Beaded Wires for Internal Fixation in Certain Oblique and Spiral Fractures of Extremities. J. E. M. Thomson and C. F. Ferciot, Lincoln, Neb.—p. 831.

Carbohydrate Metabolism in Osteoporosis and Paget's Disease.—Moehlig and Adler stress the close association between carbohydrate metabolism and osteoporosis and Paget's disease. Twenty-six patients with Paget's disease, from 34 to 67 years of age, were studied. Dextrose tolerance tests were made on eighteen, sixteen of whom had a diabetic type curve; two were normal. Of all patients, 61.5 per cent had diabetic dextrose tolerance curves; 88.8 per cent of the patients having the tolerance test were of the diabetic type, 30 per cent gave a familial history of diabetes, 83 per cent gave a familial history of obesity and 78 per cent gave a familial history of tallness. Adenomatous goiters were present in 44 per cent of the patients, of which 15.5 per cent were calcified; 32 per cent had thyroparathyroidectomy. Of the women patients, 33.3 per cent had fibroids of the uterus. Of this number, 75 per cent were calcified as shown by roentgenograms and at operation. In 15.6 per cent of the patients, renal calculi were demonstrable by roentgenograms, cystoscopy and operative removal, and gallstones were present in 11 per cent. In the osteoporotic group there were twenty-six patients. The ages ranged from 40 to 70 years. Twenty had dextrose tolerance tests, and eighteen of this number showed a diabetic type of curve. Two had normal curves, and in six no studies were made. A diabetic type of tolerance curve was evident in 70 per cent; that is, 90 per cent of those having the test showed a diabetic dextrose curve. In 34 per cent a familial history of diabetes was obtained, 70 per cent gave a familial history of obesity and 84 per cent gave a familial history of tallness. Of this group 65 per cent had adenomatous goiters, 24 per cent of which were calcified. Of this group 38 per cent were operated on, 27 per cent having had a thyroparathyroidectomy. Of the women patients, 47.6 per cent had fibroids of the uterus. Calcification was demonstrated by roentgenograms and operative removal in 30 per cent of this group. Renal calculus was demonstrable in 15 per cent by roentgenograms, cystoscopy and operative removal, and 16 per cent of all patients had gallstones demonstrable by roentgenograms or operative removal. Thyroparathyroidectomy or thyroidectomy had no permanent influence on the bone lesions or the bone pains in either disease, nor did these procedures eliminate the diabetic type of curve. No case of tetany developed after parathyroidectomy—even after removal of two and even three parathyroids. No striking pathologic lesions of the parathyroids were found in either group. In the osteoporotic group the onset of symptoms frequently began at or near the menopause. The calcification of goiters and fibroids as well as renal calculi associated with frequent arteriosclerosis in both groups would indicate that the bone lesions surrender calcium to the soft tissues. The feeding of calcium, viosterol and vitamin D in these diseases would seem to be contraindicated, as this has a tendency to increase deposition of calcium in the soft tissues. So far the use of insulin and a measured diet has given symptomatic relief of pains, weakness and fatigue. Three patients with Paget's disease over a period of a year using insulin and a measured diet show that the bone lesions are stationary in two and progressive in one.

Reactions Following Intravenous Infusions of Acacia Dextrose.—Studdiford presents three cases with a syndrome characterized by cyanosis, dyspnea, tachycardia and pulmonary edema following the use of acacia dextrose solution intravenously. Two of these patients died, and one recovered and is still living. One patient came to necropsy and showed an extensive destructive lesion of the liver. The influence of acacia solution in this group is almost without question. Three other cases are reported. In two of these a similar syndrome appeared after the use of acacia dextrose. Both patients died. One necropsy was obtained and showed a liver lesion similar to that noted before, but much less advanced. The other patient showed extensive subcutaneous ecchymosis and edema limited mainly to the face and neck and occurring after the use of acacia dextrose infusion. She died a few weeks later. Necropsy showed "acute yellow atrophy" of the liver. The influence of acacia in the second group of cases is not quite as clear but is highly suggestive. Recent experimental work is reviewed showing that liver damage is likely to follow the intravenous use of acacia and that acacia causes serious disturbances of the red cells, interfering with normal gaseous interchange, increasing the tendency to rouleau formation and causing a rapid sedimentation rate. Conglutination of red cells may occur, producing capillary blockage.

CORRECTION

American Journal of Clinical Pathology.—In THE JOURNAL, May 8, page 1675, the heading for the titles appearing under the *American Journal of Pathology*, Boston, should read *American Journal of Clinical Pathology*, Baltimore.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

49: 93-150 (March) 1937

Bacteriology of Pemphigus Neonatorum, and Suggestion for Further Investigation by Different Method of Cultural Proceeding. H. G. Adamson.—p. 93.
Etiology and Pathology of Acrocyanosis. E. S. Stern.—p. 100.
Fatal Skin Disease with Features Suggesting Pemphigus Vegetans. R. Y. Dawbarn and S. L. Strange.—p. 109.

British Journal of Physical Medicine, London

11: 197-218 (March) 1937

Some Experiences with Short Wave Therapy. J. Kalmanson.—p. 199.
Electrotherapy Papers: I. Electrotherapeutic Equipment of the General Practitioner. A. P. Cawadias.—p. 203.
Electromedical Apparatus: Its Character, Operation and Care: I. Galvanic Current. L. G. H. Sarsfield.—p. 207.
Recent Methods of Physical Therapy in Germany. H. G. Scholtz.—p. 211.

British Journal of Radiology, London

10: 141-292 (March) 1937

Diagnosis and Treatment of Primary Cancer of Lung. A. C. Christie, Washington, D. C.—p. 141.
High Velocity Positive Ions: Their Application to Transmutation of Atomic Nuclei and Production of Artificial Radioactivity. J. D. Cockcroft.—p. 159.
*Importance of Radiology in Early Diagnosis of Bone Tumors. J. F. Brailsford.—p. 171.
Some Observations on Osteochondromas, Chondromas and Cystic Diseases of Bone. R. E. Roberts.—p. 196.
Tumors of the Jaw. H. M. Worth.—p. 223.
Anatomic Variations of Stomach and Duodenum Within Abdominal Cavity. R. B. Myles.—p. 237.
Congenital Abnormalities of Colon. S. C. Shanks.—p. 261.
Gamma-Ray Measurement of Radium Content by Means of Ballistic Valve Amplifier. G. W. C. Kaye, W. E. T. Perry and D. E. A. Jones.—p. 282.

Radiology in Early Diagnosis of Bone Tumors.—Brailsford states that in the investigation of bone tumors a careful record, which includes details of the clinical history of the patient and of the lesion, the physical signs and symptoms that have accompanied the lesion and, in particular, notes of any aggravation of the local signs or symptoms, and the results of the Wassermann and urine examinations, are most essential. Such records themselves do not supply sufficient evidence on which to make a diagnosis, but they often indicate the lines on which further investigation should proceed. Biopsy is not without the danger of disseminating the tumor cells or accelerating their development. In some cases it supplies the essential irrefutable positive evidence, but in other cases the histologic structure entirely misleads the pathologist as to the nature of the tumor. Consequently, confirmatory evidence must always be sought. Roentgenography should be the first court of appeal in all lesions of bone, for it is capable, in the majority of instances, of indicating the pathologic signs long before the clinical appearances can suggest it and before surgical measures for biopsy or treatment are justifiable. With the demand for earlier diagnosis, on which successful treatment depends, interpretation of x-ray appearances becomes increasingly difficult, for the early changes are often not sufficiently characteristic of a specific lesion. There are examples of bone tumors the nature of which is indicated only during careful clinical examinations and in which the microscopic and x-ray appearance may only serve to confuse. In others the microscopic appearance is the essential factor in elucidating the problem. There are many in which the x-ray evidence is conclusive to the experienced observer, though this may not be supported either clinically or histologically. There are a few which remain as problems in spite of the most exhaustive clinical, histologic and x-ray investigations. Each of the trio plays an essential part, and neither should be neglected. The roentgenologist's report should not be a mere description of x-ray appearances but should contain also an indication to the clinician of the nature of the lesion, taking into account the clinical history, signs and symptoms. There is need for some central registry of bone tumors to which cases can be referred for further opinion, such as exists in America.

Indian Journal of Medical Research, Calcutta

24: 571-930 (Jan.) 1937. Partial Index

Two Easy Methods of Transplanting Tubercle Bacilli Directly from Solid to Liquid Culture Mediums. M. B. Soparkar.—p. 593.
Nature of Immunity Resulting from TAB Inoculation: Study of O Agglutinins in Serums of Inoculated Human Subjects and Their Immunologic Significance. S. S. Bhatnagar, J. F. Freeman and C. S. Dhilon.—p. 597.
Diet Surveys in South Indian Villages. W. R. Aykroyd and B. G. Krishnan.—p. 667.
Survey of Nutritive Value of Indian Foodstuffs: Part I. Chemical Composition of 100 Common Foods. S. Ranganathan, A. R. Sundararajan and M. Swaminathan.—p. 689.
State of Nutrition of School Children in South India: Part II. Diet and Deficiency Disease in Residential Hostels. W. R. Aykroyd and B. G. Krishnan.—p. 707.
*Relative Value of Proteins of Certain Foodstuffs in Nutrition. M. Swaminathan.—p. 767.
Balanced Diets: Part I. S. P. Niyogi, V. N. Patwardhan and R. G. Chitre.—p. 787.
Studies on Absorption of Carotene and Vitamin A in Human Subject. H. E. C. Wilson, S. M. Das Gupta and B. Ahmad.—p. 807.
Nutritional Survey of Schoolboys in Calcutta and Punjab by Means of Clinical Observations, Arm-Chest-Hip Index of Nutrition and Other Measurements. H. E. C. Wilson, B. Ahmad and D. D. Mitra.—p. 817.
Studies on Increase of Blood Calcium After Intravenous Administration of Glucose. S. C. Sen and P. N. Chaudhury.—p. 845.
Possible Influence of Solar Radiation on Production of Cataract in Certain Districts of Southern India: Preliminary Investigation. R. E. Wright.—p. 915.

Value of Proteins of Foodstuffs in Nutrition.—Swaminathan determined the biologic values and digestibility of the proteins of thirteen foodstuffs, which include five cereals, three pulses and five vegetables, by the balance sheet method on adult male rats. On a 5 per cent level of protein intake, the digestibility coefficient and biologic value of rice are 97 and 80, of wheat 93 and 66, of cambu 89 and 83, of cholam 91 and 83 and of ragi 80 and 89, respectively. By taking into consideration both the digestibility coefficient and biologic value, the cereal proteins may be arranged in the following descending order of merit: rice, cholam, cambu, ragi and wheat. At a 10 per cent level of protein intake the digestibility coefficient and biologic value of lentil are 88 and 41, of green gram 86 and 51 and of soya bean 76 and 54, respectively. Taking into consideration both the digestibility coefficient and the biologic value, the pulse proteins may be arranged in the following descending order: green gram, soya bean and lentil. At a 5 per cent level of protein intake the digestibility coefficient and biologic value of the proteins of drumstick leaves are 77 and 41, of amaranth leaves 78 and 72, of ipomea leaves 85 and 67, of lady's fingers 70 and 82 and of brinjals 75 and 71, respectively. On a similar basis the proteins of vegetables may be arranged thus: lady's fingers, ipomea leaves, amaranth leaves, brinjal and drumstick leaves. As regards available or net protein content, the cereals range themselves in the following descending order: cholam, wheat, cambu, rice and ragi; the pulses: soya bean, green gram and lentil, and the vegetables (in a fresh state): amaranth leaves, drumstick leaves, ipomea leaves, lady's fingers and brinjal.

Indian Medical Gazette, Calcutta

72: 1-64 (Jan.) 1937

Electrocardiographic Changes in Epidemic Dropsy. R. N. Chopra, R. N. Chaudhuri and N. De.—p. 1.
Clinical Study of Sixty-Three Cases of Oriental Sore. J. Goodall.—p. 3.
Clinical Aspects of Placenta Praevia and Its Management in Indian Conditions. J. Chakraverti.—p. 9.
Puerperal Sepsis: Review. P. C. Dutta.—p. 17.
Apparatus for Distribution of Antigen Emulsion in Kahn Test. N. Seshadrinathan and B. Timothy.—p. 21.
Rarity of Male Enterobius Vermicularis. P. V. Gharpure and V. V. Gharpure.—p. 23.
Serum Complement in Relation to Vitamin C Deficiency in Guinea-Pigs. R. K. Chakraborty.—p. 23.
Protein and Mineral Values of Some Cooked Bengali Diets. J. C. Pal and B. C. Guha.—p. 24.

International Journal of Psycho-Analysis, London

18: 1-124 (Jan.) 1937

Love and Morality: Study in Character Types. E. Jones.—p. 1.
Scopophilic Instinct and Identification. O. Fenichel.—p. 6.
Exceptions to Fundamental Rule of Psychoanalysis. R. Laforgue.—p. 35.
On Motoring and Walking. Melitta Schmideberg.—p. 42.

Journal of Physiology, London

80: 1-112 (Feb. 19) 1937

Afferent Impulses in Nerves Supplying Urinary Bladder. M. Talaat. —p. 1.
Observations on Renal Circulation and Secretion in Dog, with Especial Reference to Effect of Pituitary (Posterior Lobe) Extract. H. Handovsky and A. Samaan.—p. 14.
Effect of Electrotonus on Excitability of Nerve. H. D. Bouman.—p. 32.
Pharmacologic Experiments on Mammalian Voluntary Muscle, in Relation to Theory of Chemical Transmission. Z. M. Bacq and G. L. Brown.—p. 45.
Total Osmotic Concentrations in Serum and Aqueous Humor. G. H. Benham, H. Davson and W. S. Duke-Elder.—p. 61.
Standardization of Cortical Extracts by Use of Drakes. Edith Bülbring. —p. 64.
State in Blood and Excretion by Kidney of Antidiuretic Principle of Posterior Pituitary Extracts. H. Heller.—p. 81.
Vaginal Hydrogen Ion Concentration in Monkeys Injected with Estrone. R. M. Ranson and S. Zuckerman.—p. 96.
Transmission of Impulses Through Ciliary Ganglion. D. Whitteridge. —p. 99.

Journal of Tropical Medicine and Hygiene, London

40: 53-64 (March 1) 1937

Inquiry into Etiology of Dengue Fever. A. C. Coles.—p. 53.
Control of Bilharzia Snailhost in South Africa and Other Countries. F. G. Cawston.—p. 56.

Lancet, London

1: 427-492 (Feb. 20) 1937

*Ritual Purgation in Modern Medicine. L. J. Witts.—p. 427.
Hemorrhagic Disease of the New-Born: Study of Sixty-One Cases. N. B. Capon.—p. 431.
Effects of Prolonged Estrin-Stimulation on Cervix Uteri. S. Zuckerman. —p. 435.
*Comparison Between Adsorptive Action of Kaolin and Kaolin-Alumina Mixture on Fecal Bacteria. W. Smith.—p. 438.

Ritual Purgation in Modern Medicine.—Witts suggests that much of the purgation of sick people carried on today is harmful and to be explained only by thoughtless adherence to tradition. Few if any of the symptoms of acute illnesses can be attributed to constipation or relieved by emptying the intestine, and many of them are much aggravated by purgation. In most acute diseases there is a tendency to dehydration. Constipation is a result of acute disease and not a cause. With few exceptions, toxins are neither absorbed nor excreted through the intestinal wall. Intestinal toxemia is more likely to result from diarrhea than from constipation. Purgation disturbs and exhausts the patient, provokes gastro-enteritis, especially in acute infections, increases dehydration and leads to uremia in toxic states, and excites vomiting, hemorrhage and distention in lesions of the alimentary tract. Purgatives may be given in acute bacterial infections of the alimentary tract to secure elimination, and in increased intracranial pressure and status epilepticus for deliberate dehydration. With these exceptions, purgatives should not be administered to patients who are acutely ill. Constipation does not cause meteorism. The most common cause of meteorism is handling or infection of the intestine in surgical patients. Purgatives should never be given in diseases of which diarrhea is a symptom, such as Addison's disease and thyrotoxicosis. They are also very dangerous in measles, severe burns and edema. There is rarely any urgency for the bowels to act in acute illness, and, when it is necessary, they should be opened by enemas and not by drugs. In alimentary hemorrhage and in peritonitis there is often great benefit from keeping them inactive for from five to ten days.

Adsorptive Action of Kaolin on Fecal Bacteria.—In view of the observation that a kaolin-alumina mixture apparently is more efficient, as regards its adsorptive power, when compared with kaolin, Smith endeavored to determine whether such a mixture adsorbed a greater number of bacteria than kaolin. The mixture used contained 20 per cent of aluminum silicate (kaolin) and 2.5 per cent of aluminum hydroxide gel. When 6 Gm. of the mixture was used, not a single colony of Bacillus coli was obtained in the twenty-four hour cultures of feces. The bacilli, however, were still numerous in similar culture when the kaolin alone was used. When stronger fecal emulsions having a definite coloration were employed, Swalm's observations of the greater efficacy of the kaolin-alumina mixture in decolorizing and removing the odor from the suspension as compared with kaolin alone were confirmed. The explanation of these observations appears to lie in the "adsorption" quality, and not in any way to a change in the hydrogen ion concentration or to a bactericidal effect of the supernatant fluid.

Medical Journal of Australia, Sydney

1: 273-312 (Feb. 20) 1937

Local Board of Health, Hindmarsh: Report on Diphtheria Immunization Campaign. J. M. Dwyer.—p. 273.
Abdominal Pain in Childhood. K. B. Fraser.—p. 280.
Some Aspects of Diagnosis of Intracranial Tumors. I. D. Miller.—p. 286.
Medicine and the Arts. L. Duncan.—p. 290.

Tubercle, London

18: 241-288 (March) 1937

*Prognostic Significance of von Pirquet Cutaneous Reaction in Adults. W. G. Watson.—p. 241.
Thoracoplasty in Treatment of Pulmonary Tuberculosis. G. A. Mason. —p. 255.
Thoracoplasty from the Physician's Point of View. J. L. Livingstone. —p. 262.

Significance of Pirquet Cutaneous Reaction in Adults.—Watson assesses the prognostic significance of the Pirquet cutaneous reaction in adults and demonstrates that pronounced sensitiveness to tuberculin (or the power to give a strongly positive cutaneous reaction) is an advantage to the infected organism, whether clinically tuberculous or apparently healthy. The results of an inquiry into the history of ninety-six cases of clinical tuberculosis over a period of approximately nine years are given. It appears that the patient having clinical tuberculosis possessing a strongly positive Pirquet reaction has approximately a 14 per cent better chance of survival at the end of nine years than a subject failing to give such a reaction. The relative immediate prognosis as regards survival is even better than the remote prognosis. Localized surgical tuberculosis is not often succeeded by pulmonary or generalized tuberculous infection. In this connection it is significant that the subjects of surgical tuberculosis are almost invariably found to be capable of giving a very strongly positive Pirquet reaction. In direct contrast to this, when the tubercle bacillus is introduced into "virgin soil" the results are disastrous, as witness the tremendously widespread infection often occurring among savage or primitive communities after they have established contact and association with the white races. The influence of many acute infections on the Pirquet reaction has a definite effect on previously positive reactions, causing a temporary fading or disappearance of the reaction during the actual acute stage of infection. A positive Pirquet reaction is of indisputable value as an auxiliary protection against virulent infection, which may foreshadow the effect of the strongly positive Pirquet reaction when infection has actually already taken place. Even in the apparently healthy the prognosis with regard to tuberculous morbidity by direct infection is improved by the possession of a strongly positive Pirquet reaction. The Pirquet reaction even in the apparently healthy provides a useful addition to the other prognostic methods relative to tuberculosis morbidity, and the power to give, under these conditions, a strongly positive Pirquet reaction is a favorable prognostic sign. The author proposes a hypothesis of the significance and meaning of the tuberculocutaneous reactions based on these observations and Calmette's investigations. Since toxin saturation of tissues is undesirable, since accumulation of tuberculin in the tissues is undesirable and since the evolution and action of an "ergine" is an essential factor in the prevention of both, acute sensitiveness to the presence of tuberculin in the tissues leading to "ergine" formation and action before large amounts of tuberculin have accumulated tends to facilitate the elimination of the latter and prevent toxin saturation of the tissues; i. e., sensitiveness to tuberculin is of advantage to the infected organism.

Japanese Journal of Experimental Medicine, Tokyo

14: 535-590 (Dec. 20) 1936

Contribution to Yaws of Rabbits. S. Aikawa.—p. 535.
Experimental Studies of Syphilis of Central Nervous System: XI. Report. I. Oya.—p. 539.
Id.: XII. Report. H. Hutaki.—p. 543.
Id.: XIII. Report. H. Hutaki.—p. 547.
Changes in Blood Picture of Dogs and Histologic Findings in Their Hematopoietic Organs Caused by Experimental Forced Rapid Running. T. Tsuchiya.—p. 551.

Archives des Maladies de l'Appareil Digestif, Paris

27: 233-352 (March) 1937

*False Roentgenograms of Cancer of Stomach. R. Savignac.—p. 233.
Endogenous Toxic Cholecystitis. C. Amerling.—p. 248.
Insufficiency of Cardia. J. Glass.—p. 266.
Blood Changes in Acute Parenchymatous Hepatitis. I. B. Schulutko, R. G. Berger, N. E. Bagryanskaya.—p. 272.

False Roentgenograms of Cancer of Stomach.—Savignac believes that the importance of a niche in roentgenograms may be disputed, especially with regard to the diagnosis of cancer. He bases his conclusions on three observations. The first patient showed a persistent prepyloric irregularity and a depression which scarcely ever was filled by opaque substance. But this depression varied in contour. Resistance, eliciting pain, was felt on palpation. The stomach was empty after five hours. The diagnosis of cancer was changed later because of the age (27 years), the inconstancy of the niche and its localization. It proved to be an alcoholic gastritis, which yielded to treatment and temperance. The second patient was a woman, aged 63, with a clinical syndrome of ulcer dating back many years. She presented a hard mass, which was painful, irregular in outline and movable on respiration. Examination for occult hemorrhage was negative, but the roentgenograms were typical of a neoplasm. An exploratory operation was refused. But the patient improved generally, although a second roentgen examination showed aggravation of symptoms. Suddenly the patient developed symptoms of paralysis agitans and died of pneumonia. The necropsy revealed an old ulcer of the anterior aspect of the stomach, but no cancer. The third patient was a man, aged 61, a hard worker and slow eater, complaining of gastric acidity and burning, especially late after meals. The opaque meal revealed a neoplastic zone of infiltration in the prepyloric region, with no pyloric stenosis but a rather narrowed passage. An exploratory operation was rejected. A second roentgen examination showed improved symptoms with beginning pyloric stenosis. In all these cases an exploratory operation would have constituted a smaller hazard than expectant treatment.

Bull. et Mém. de la Soc. Méd des Hôpitaux de Paris

53: 281-333 (March 8) 1937. Partial Index

Grave Gonococcic Arthritis with Bony Lesions of the Coxa: Two Cases. P. Jacquet, Turiaf, A. Rubens-Duval and Mme. Congy.—p. 293.
Direct Intrabronchial Specimen of Koch Bacilli and Separation of Sputum. M. Léon-Kindberg, G. Lapiné and P. Adida.—p. 302.
*Sternal Puncture in Leishmaniasis, Method of Choice. N. Lorando.—p. 314.
Contributions to Clinical Study of One-Sided Cervicopulmonary Tuberculosis. É. Bernard, A. Grossiord and L. Vilté.—p. 316.
Rotatory or Torsion Epilepsy. C. I. Urechia.—p. 324.

Sternal Puncture in Leishmaniasis.—Many physicians hesitate to puncture the spleen. They therefore seek to confirm the diagnosis by utilizing the fixation reaction after Makas-Angelopoulo or by means of other easy methods mostly in use in France and in Anglo-Saxon countries. Lorando regards the direct search of leishmanias as the only reliable method which would lead to a diagnosis. Makas (1934) was the first to utilize the marrow of the tibia for the diagnosis of kala-azar in fifteen children, eleven of whom had a positive reaction. The author in his research for leishmanias made sternal punctures in six patients in 1936 and all had a positive reaction. These cases were subsequently treated with intravenous injections of ureostibamine (about seven doses of from 0.05 to 0.12 Gm.), after which a second puncture proved altogether negative.

53: 335-353 (March 15) 1937

*Value of Bony Marrow Puncture for Diagnosis of Mediterranean Kala-Azar. P. Giraud and Gaubert.—p. 336.
Urinary Cevitamic Acid in Treatment of Adult Scurvy. N. Fiessinger, R. Dupuy and M. Aussannaire.—p. 339.
Use of Roentgenologic Series in Examination of Deep Thoracic Lesions. P. Cottenot.—p. 344.

Bony Marrow Puncture in Mediterranean Kala-Azar.—The only proof for the diagnosis of kala-azar is the demonstration of the parasite. Giraud and Gaubert had little success with blood culture. In the puncture of the spleen they obtained a more reliable method, but it subjects the patient to an often dangerous peritoneal hemorrhage. The puncture of superficial glands is not injurious, but its results are not reliable. Puncture of bony marrow gives sure results and is absolutely innocuous. Local anesthesia is not necessary and is often rejected by the patients. The authors use a small trocar, which is sterilized dry to avoid subsequent diluting of the marrow. The site of the puncture is the external aspect of the upper tibial epiphysis, about 1 cm. below the knee joint. The trocar is inserted until resistance is no longer felt and the point of the needle reaches the spongiosa, from which some marrow is withdrawn. It is then put on slides. The smallest specimens are sometimes the best, as they are not diluted. It is therefore not feasible to apply suction or to wait for blood to ascend into the trocar. If no material is obtained by the puncture, the other side should be tried. The technic is easy in infants and becomes more difficult with advancing age of the child owing to increasing ossification. The authors preferred the puncture of the spleen beyond the age of 10, as the patients would never submit to a sternal puncture. Of twenty-two cases the authors obtained fifteen positive results.

Mémoires de l'Académie de Chirurgie, Paris

63: 351-411 (March 17) 1937

Colibacillary Peritonitis Following Supravaginal Hysterectomy. A. Gosset and P. Funck-Brentano.—p. 363.
Uricocalcemia Checked by Parathyroidectomy. G. Jeanneney, M. Creyx and G. Ringenbach.—p. 371.
*Intracranial Section of Auditory Nerve in Treating Auricular Vertigo. M. Ombrédanne.—p. 379.
Extirpation of Large Nasopharyngeal Fibroma by Subtotal Resection of Maxilla and Conservation of Palate. G. Miginiac and Escat Jr.—p. 391.
Foci of Osteoporosis of Femoral Head and Acetabulum in Arthritis Deformans of Hip Joint: Two Cases. E. Sorrel.—p. 399.
Diagnosis and Treatment of Cerebral Traumas. C. Vincent.—p. 405.

Intracranial Section of Auditory Nerve.—Ombrédanne utilizes Dandy's method in a modified form: partial section of the auditory nerve, which suppresses vertigo and pain but saves the sense of hearing. Of nineteen cases of simple Ménière's syndrome in which operation was performed, all were successful. Of seventeen patients with atypical Ménière's syndrome, fourteen were cured, two died and in one the symptoms persisted. Some of these patients were very vertiginous, were deaf in one ear, and had an intolerable tinnitus. The two deceased were chronic otorrheic patients who previously had several operations. The patient is prepared with sedatives a few days before the operation. He is made to lie on his abdomen and with his head beyond the border of the table on a special support. Under local anesthesia the incision starts about an inch and a half below the external occipital protuberance near the median line, runs obliquely upward toward the posterosuperior angle of the mastoid, and goes straight down to the inner side of the apex of the mastoid. When the zone is exposed, care must be taken of the mastoid vein and of the suboccipital venous plexuses. The trephine opening is made with a large drill into the horizontal part of the occipital bone, about an inch from the posterior border of the mastoid and from the upper curved line of the occipital bone. The orifice is then rapidly enlarged by means of semicircular forceps, but cautiously lest the mastoid cells be opened. With the aid of a small hook the dura is drawn back as much as possible from the cerebellum and a crossed incision is made, resulting in four flaps. The postero-inferior aspect of the cerebellum is then raised. The arachnoid over the posterior cistern is incised. A retractor is then inserted between the petrous bone and the cerebellum and the latter is pushed slowly inward while the retractor is gradually forced deeper. Evacuation through suction of the pontocerebellar cistern gives access to the auditory nerve. The two branches of the auditory nerve are separated and the thicker, the vestibular, nerve is cut. Its two ends are receding immediately, leaving the cochlear nerve intact. The dura is then carefully sutured with fine catgut or silk and a drain of horsehair is left for from twenty-four to forty-eight hours between it and the skin flap. Among the postoperative events may be mentioned a violent nystagmus, which disappears in from ten to twenty days, and vomiting and vertigo, which vanish soon. The same may be said of the occipital headache, the elevation of temperature (100.4 F.) and diplopia. But the original pain, dizziness and tinnitus, so strong at the time of the operation, do not return.

Presse Médicale

48: 409-432 (March 17) 1937

Pathologic Arteriovenous Interrelations of the Limbs. L. Cornil, P. Mosinger and M. Audier.—p. 409.
Value of Aschheim-Zondek Reaction in Diagnosis of Cerebral Tumors. M. Monnier.—p. 412.
*Demianoff's Sign in Lumbago and Funiculitis. J. Vinocour.—p. 416.

Demianoff's Sign in Lumbago and Funiculitis.—Vinocour maintains that the Lasègue sign is not sufficient for the diagnosis of sciatica. It is a mosaic of different symptoms, not one of which is characteristic of the disease of the sciatic nerve alone. Demianoff of the University of Veronesh described a modification of this sign tending to convert it into a differential diagnostic sign between lumbago and sciatica. By bending the extended limb on the coxofemoral joint the corresponding half of the body becomes lowered and with it the muscle fixed to the sacrolumbar segment. Lowering stretches and traumatizes the muscle and, in case of lumbago, brings forth a sharp pain in the lumbar region. Demianoff thinks that the sciatic nerves are not responsible for pure lumbago and that for this reason the Lasègue sign is negative. The pains are not caused by the stretching of the nerve but by the distention of the affected muscles at the posterior aspect of the pelvis. He demonstrates this by fixing with one hand the anterior upper iliac tuberosity while with the other hand he elevates the leg of the same side. In this manner the pelvis is fixed and the leg can be painlessly raised to 90 degrees, while without fixing the pelvis the leg cannot be raised above 15 or 16 degrees. In the coexistence of sciatica with lumbago, Demianoff's sign is negative on the side of the sciatica, but when the opposite leg is raised there is pain before fixation and none during fixation. In double sciatica with lumbago, Demianoff's sign is again negative. Thus, in contrast with Lasègue's sign, Demianoff's sign has muscular but not nervous characteristics. However, muscular pain is not always allied with muscular rigidity. Lesions of the sciatic nerve elicit trophic alterations and accumulation of toxic products in the muscle. This is why often only a lessening of pain and not its complete disappearance is noticed in Demianoff's procedure. In a case seen by Sicard and Forestier there was a reactive inflammation of the extrameningeal part of the roots from pressure. The patient recovered after a double laminectomy of the third to fifth lumbar vertebrae. Demianoff's sign may be used as a symptom in local lesions of muscles, upper lumbar nervous roots and funicular sciatica.

Policlinico, Rome

44: 121-172 (March 15) 1937. Surgical Section

Traumatic Nephritis: Experiments. D. Ciddio.—p. 121.
Syringomyelic Arthropathy: Case. E. Leni.—p. 134.
*Echinococcosis of Kidney. G. Millul.—p. 154.
Spontaneous Perirenal Cystic Hematoma: Case. L. Ugelli.—p. 162.

Echinococcus Cyst of the Kidney.—According to Millul, the history of the patients suffering from echinococcus cyst of the kidney and their objective and urologic examinations show the presence but not the nature of renal disturbances. Roentgen examination of the urinary tract shows the presence of renal tumor. The differential diagnosis of renal tumor and echinococcus cyst of the kidney is made from the special modification of the renal pelvis and of the calices, as shown by ascending pyelography, which is different in each condition. Entrance of the opaque substance in the cyst indicates a communication between the cyst and the renal pelvis and excludes the diagnosis of polycystic kidney. The pyelographic diagnosis is confirmed by the results of certain biologic tests. Urticaria is a sign of diagnostic value, provided the presence of idiopathic urticaria is excluded. It is due to entrance of hydatid fluid in the blood from rupture of the cyst, or to an anaphylactic reaction of the body to hydatid products. The reaction does not take place in other pathologic conditions of the kidney. Patients suffering from echinococcus cysts of the kidney have intense eosinophilia, which is not of diagnostic value because it occurs frequently in other parasitic infestations and nonparasitic pathologic conditions. Casoni's intradermal reaction of local allergy and Ghedini-Weimberg's reaction of the complement fixation are biologic tests of diagnostic value and are specific. Casoni's reaction is specific in 92 per cent of the cases. The treatment of choice is nephrectomy, but if the latter is contraindicated a conservative treatment is resorted to. One case is reported.

Rinascenza Medica, Naples

14: 115-144 (Feb. 28) 1937

*Diagnosis of Latent Chronic Pancreatitis. J. W. Grott.—p. 115.
Echinococcus Cyst of Scarpa's Triangle: Case. F. Rabboni.—p. 119.
Tuberculous Anemia and Liver Therapy. G. Mesirca.—p. 120.

Diagnosis of Pancreatitis.—Grott's method for diagnosis of latent chronic pancreatitis consists in the determination of the presence or coexistence of one or several of the following conditions: glycosuria, increase of the amount of pancreatic diastase in the urine and pain at the pancreas. The history in these cases shows involvement of the pancreas in previous pathologic conditions of parapancreatic organs. The presence of pancreatic pain is determined by palpation. Glycosuria is determined two hours after administration of a solution of 50 Gm. of dextrose. The increase of pancreatic diastase in the urine is determined after administration of a test meal. In determining the pancreatic diastase, freshly eliminated urine is used because the amount of diastase diminishes by exposure. Out of a group of 141 patients, a diagnosis of latent chronic pancreatitis was made in fifty-three cases from the presence of glycosuria and in eighty-eight cases from that of a painful pancreas. The test of produced glycemia gave negative results in forty-one cases in this group. The remaining forty-seven were diabetic patients. Glycosuria was not taken into consideration for the diagnosis of the coexistent pancreatitis in these cases. The amount of pancreatic diastase in the urine was increased in forty-four cases of the group. The negative results of the tests do not necessarily exclude the presence of latent chronic pancreatitis, but the number of cases in which a diagnosis can be made by the author's method is large.

Rivista di Patologia e Clin. d. Tubercolosi, Bologna

11: 162-236 (March 31) 1937

Physiopathology of Fattening in Tuberculosis. E. Lenci.—p. 161.
*Influence of Exeresis of Phrenic Nerve in Pulmonary Tuberculosis on Contralateral Lung. V. Maccone.—p. 186.
Wehmann Serocoagulation Test, Velocity of Sedimentation and Blood Changes in Extrapulmonary Tuberculosis in Patients at Near-Sea Sojurn. M. Candida.—p. 207.

Influence of Phrenic Exeresis on Contralateral Lung.—Maccone studied the results of 153 phrenico-exereses in patients suffering from unilateral or bilateral pulmonary tuberculosis. The most frequent functional modifications of the contralateral lung and hemithorax are those of the respiratory excursions of the hemidiaphragm and of the costal wall and also those of the intrapleural pressure, as well as displacement of the mediastinum. The variations do not necessarily follow phrenico-exeresis in all cases. When they take place they are unrelated to the subsequent bilateralization of tuberculosis to a normal lung and to the evolution of previously existing tuberculosis. The favorable or unfavorable evolution of preexisting tuberculosis following phrenico-exeresis in bilateral tuberculosis parallels that of tuberculosis of the lung of the side on which the operation is made. The results on both lungs are evident shortly after the operation. Bilateralization sets in after failure of phrenico-exeresis to control acute or subacute tuberculosis of the lung on the side on which the operation is done. An influence, favorable or unfavorable, of phrenico-exeresis on the contralateral lung is more frequently induced in exudative than in productive tuberculosis. The etiopathogenesis of the functional and anatomic changes induced by phrenico-exeresis is complicated. It is related to the reaction of several organic factors or to certain local or mechanical conditions created by the operation. The factors involved are (1) a general organic and local tissural reactivity to tubercle bacilli and, in this connection, action of phrenico-exeresis on immunitary and local organic defenses in the given case, (2) clinical and anatomic nature of the tuberculous lesions and reaction of the lesions, (3) intensity of tuberculous and nontuberculous toxemia and its modifications, and (4) collapse or hyperdistention of the contralateral lung with consequent respiratory alterations. According to the author, phrenico-exeresis has neither a favorable nor an unfavorable direct action on the contralateral lung. Its action is indirect through modifications of several pathogenic correlated factors.

Revista de Cirugía, Buenos Aires

15: 625-692 (Dec.) 1936

Paraperitoneal Anterior Lumbar Sympathectomy. A. Gutierrez.—p. 625.
*Diverticula of Bladder. M. A. Llanos.—p. 635.
Postoperative Peptic Ulcer. B. Labandibar.—p. 646.

Diverticula of Bladder.—Llanos discusses the subject of congenital diverticula of the bladder, especially from the point of view of treatment. He states that abstention treatment is indicated only in latent small or large uncomplicated diverticula, especially in the elderly. Otherwise the treatment is surgical. The operation varies with the given condition. Removal of the diverticulum through an ample suprapubic incision, followed by introduction of a sound in the bladder and of an extravesical drain and final suture of the incision, is indicated in uncomplicated diverticula of the bladder causing retention of urine or hematuria. In cases complicated by infection, the bladder and the diverticulum are opened and drained. Once the infection is controlled, the diverticulum is removed and the bladder treated as after removal of uncomplicated diverticula. In the presence of hypertrophy of the prostate or of the vesical neck, a cystotomy is done, the infection is controlled, the hypertrophic tissues are removed and the diverticulum is enlarged and drained. In cases of complicating lithiasis the calculi are removed through a cystotomy and the bladder and diverticulum drained. Both in hypertrophic and in lithiasic complications the diverticulum is removed at a second operation if symptoms persist after the first operation. In cases of complicating malignant tumors the operation will include removal of the diverticulum with all the involved organs, even the ureter and the kidney, if it is necessary. In cases of benignant tumors the tumor may be treated by electrocoagulation or removed and the diverticulum removed if it is necessary. In cases of diverticula associated with benignant tumors and causing retention of urine or hematuria, removal of both the diverticulum and the tumor is indicated. The author has no favorable opinion on the technic of inversion of the diverticulum into the bladder or on Geraghty's technic with resection of the diverticular mucosa. He reports three cases in which an operation was done with satisfactory results.

Fortschritte a. d. Gebiete der Röntgenstrahlen, Leipzig

55: 211-318 (March) 1937. Partial Index

Functional Examination of Diseased Colon. F. Berner.—p. 211.
*Anatomic and Roentgenologic Aspects of Pneumatosis Cystoides Intestinalis. H. Urban.—p. 231.
Pericardial Calcifications. O. Rummert.—p. 241.
*Significance of Vasography as Functional Test of Peripheral Blood Vessels. M. Ratschow.—p. 253.
An Especially Extensive Form of Honeycomb Lung. F. A. Nolte.—p. 273.
Etiology and Diagnosis of Perinephric Abscess. V. Hormuth.—p. 277.

Pneumatosis Cystoides Intestinalis.—Urban states that pneumatosis cystoides intestinalis, in which gas cysts form in the intestinal wall, has never been diagnosed in the living patient except in the course of operative interventions. By the comparison of surgical and necropsy observations with clinical and roentgenologic aspects, it has been demonstrated that the appearance in the roentgenogram of certain areas of lesser density in the intestinal wall and interpositions of intestinal loops between the liver and the diaphragm may be of help in the diagnosis. Pneumatosis cystoides intestinalis is a rare disorder, for the world literature reports only about 140 cases. The case reported here is noteworthy because the diagnosis could be based only on the presence of pneumatotic changes in the abdominal lymph nodes, which were detected during the necropsy. The postmortem examination did not show macroscopic pneumatotic changes in the intestine; only the microscopic examination revealed remnants of changes of a pneumatotic character in the wall of the colon. This case had been under observation for several years, but in spite of careful clinical examinations it was not correctly diagnosed during the life of the patient. After the diagnosis of pneumatosis had been reached on the basis of the necroptically detected changes in the lymph nodes, the inspection of a roentgenogram that had been made in the course of the clinical observation disclosed changes in the intestinal wall indicative of the fact that at the time a pneumatosis of the large intestine existed. In roentgenograms taken four weeks after this one the pneumatotic intestinal changes had largely disappeared. This corroborates the observation reported in the literature that the pneumatosis, which may produce ileus-like symptoms, may disappear within a comparatively short time.

Vasography as Functional Test of Peripheral Vessels.—After reviewing previous vasographic studies and evaluating the various contrast mediums, Ratschow gives his attention to the demonstration of veins and varices, showing that the circulatory conditions can be vasographically demonstrated in every varicose region but that these tests must be made while the patient is standing. The time that elapses from the time of injection of the contrast medium to the total evacuation of the contrast blood into the deep veins gives information about the functional condition of the varicose system, and the author shows how the information thus obtained is helpful in the obliteration treatment of varicose veins. Further, he reviews studies on the lymph vessels and then gives his attention to the arterial system. He shows that, by combining the intra-arterial injection with stimuli that influence the width of the vessels, it proved possible to produce arteriograms that indicated the functional capacity of the vessels. He thinks that arteriography is permissible in those cases in which later amputation has to be considered. However, owing to the danger of possible mishaps, he does not consider it advisable for general diagnostic application.

Medizinische Welt, Berlin

11: 377-414 (March 20) 1937. Partial Index

Position of Allergy in Biologic Processes. G. Brock.—p. 377.
Initial "Abdominal Wilson's Disease," a Polyglandular and Polyvalently Active Metabolic Anomaly. V. Schilling.—p. 380.
*Clinical Use of Weltmann's Coagulation Reaction Together with Takata Reaction. H. Rosegger.—p. 384.
Combined Specific and Chemotherapy of Tuberculosis. G. Schröder.—p. 388.
*Benzene Poisoning in Rubber Gluers. E. Holstein.—p. 391.
Dangers of Intra-Uterine Pessaries. E. Vogt.—p. 394.

Weltmann's Coagulation Band and Takata Reaction.—After briefly stating the nature of Weltmann's coagulation band and of Takata's flocculation reaction, Rosegger reviews the literature on both tests and points out that both give information about the condition of the serum, but from different aspects. Whereas the coagulation band reveals the fibrous or exudative character of the existing disorder, the Takata reaction discloses the albumin-globulin relationship. The author further cites observations from the literature which indicate that both reactions are especially valuable in diseases of the liver and then discusses his own observations with the two tests in 168 cases. He found that in diseases of the liver the impairment of the hepatic cells is indicated by a widening of the coagulation band and that the Takata reaction reveals the degree of the impairment and the prognosis. In some cases with an abnormally wide coagulation band, the outcome of the Takata reaction indicates whether the disorder is in the liver or not. In a number of other disorders, the information obtained from the coagulation band is complemented, particularly as regards the prognosis, by the outcome of the Takata reaction. An involvement of the liver, the kidney and the bone marrow should always be taken into consideration in these cases. A narrow coagulation band usually excludes a positive Takata reaction, but nephritis may be an exception to this rule.

Benzene Poisoning in Rubber Gluers.—Holstein reports that a considerable number of workers, who were occupied in gluing together rubber materials with a solution consisting of india rubber (7 per cent) and benzene (93 per cent), complained of fatigue, exhaustion, headaches, dizziness and pains in the joints. In the evening they often felt as if intoxicated. Other complaints were fainting, loss of appetite, nausea, stomach ache, loss of weight, pallor, nasal and gingival hemorrhages and increased menstruation. There also were cases of anemia and hemorrhage, which might have been due to the action of benzene. After giving brief histories of some of the patients, the author mentions the measures that were taken to avoid further cases of poisoning. The ventilation of the shop was improved and the benzene solution of india rubber was replaced by a much less harmful benzine solution of india rubber.